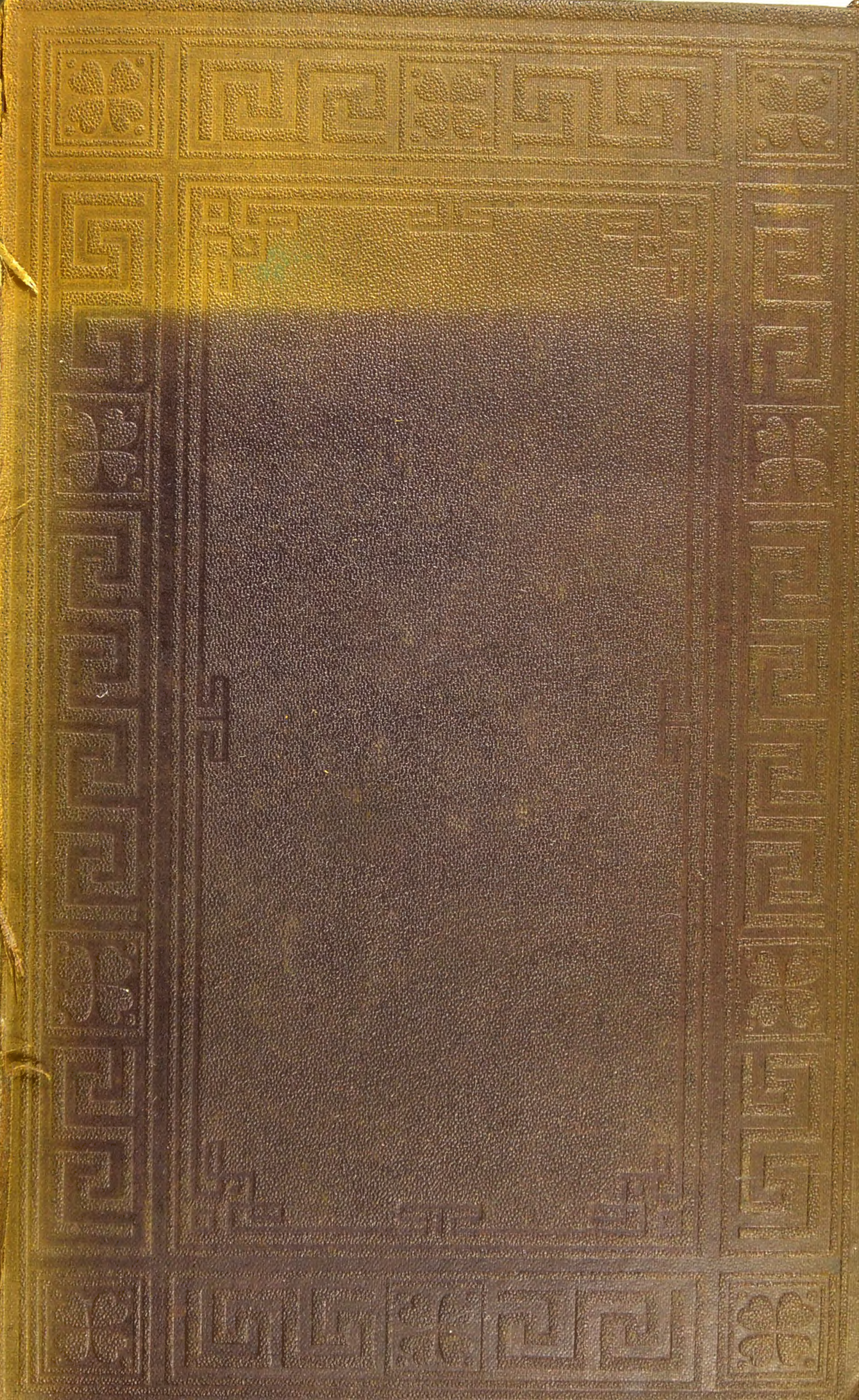

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THE CATTLE PLAGUE.

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THE
CATTLE PLAGUE;

WITH

OFFICIAL REPORTS

OF

THE INTERNATIONAL VETERINARY CONGRESSES,

HELD IN HAMBURG, 1863, AND IN VIENNA, 1865.

By JOHN GAMGEE,

PRINCIPAL OF THE ALBERT VETERINARY COLLEGE, LONDON; LATE PRINCIPAL OF THE
NEW VETERINARY COLLEGE, EDINBURGH, ETC., ETC.

LONDON:
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PREFACE.

A WORK on the Cattle Plague does not demand, under existing circumstances, an elaborate explanation of the reasons which have prompted its preparation. This is the time for collecting all serviceable material bearing on the subject, in such a form as to render it available to Members of Parliament, Magistrates, Professional Men, Stockowners, and others. I have undertaken the task from a desire to prove of service—a desire which has haunted me since first indicating the existence of the Cattle Plague on reaching London last July. A month had then been lost in warning the country of the great calamity which had befallen it—a calamity at that time capable of speedy and certain remedy. Not only was it then impossible to entertain any doubts as to the consequences of past negligence, but no sooner had I commenced to draw as faithful a picture as I possibly could of the disease—of its nature and prevention—than I found myself attacked on all sides. I had few, very few, consistent supporters, and was doomed to listen to people decrying veterinarians, when all that was needed to save the country was to adopt the course taken by the French and Belgian Governments, of acting on the counsel we could proffer on such an occasion. It must always be a satisfaction to my profession to know that in the British outbreak of Russian Murrain of 1865-66, the advice given by its members was sound and rational, however much it may have been despised and openly denounced.

The points on which I have specially had to contend, with not a few opponents, were, at first, the foreign origin of the malady, the impossibility of its spontaneous development in the London dairies, the insufficiency of any remedy or class of remedies, the folly of establishing cattle-hospitals or sanatoria, the importance of regulating and controlling the traffic in live stock, stopping all movement where the disease appeared, and prohibiting importation from Holland, or establishing foreign stock-markets and slaughter-houses. I have advocated a system of national insurance or one of indemnity; of slaughter of the sick and infected animals. I was not in favour of the recommendation of the majority of the Cattle Plague Commissioners, inasmuch as stopping the entire traffic of the country without "stamping out" the disease could not serve our purpose. A recommendation that Parliament should be at once summoned, that inspectors should continue the practice of slaughtering, backed with funds to indemnify owners —all in addition to stopping the traffic—would, in my opinion, have been more rational and less embarrassing to Government than the suggestion which could not be, as indeed it was not, carried into effect. I think the Government has been slow; but what would the Government have not done had it been armed with power by such bills as those defeated in 1864? I can bear witness to the fact that the mere suggestion of coercive measures, even up to the time of the Commissioners' Report appearing in print, was met with resolute opposition—an opposition well exemplified by Mr. M'Clean's statement, which uttered the sentiments of the bulk of the British people even so late as the end of last October. I have attended meetings, in January of the present year, at which some speakers advocated ably and warmly the "non-interference" system; and physicians of great eminence and influence have spoken to me of the folly of advocating measures which were incompatible with the existence of any but a purely paternal Government. There is a reaction. People are panic-stricken. Last autumn, and far on into the winter, we could not move them. They are now ready for anything. I must not omit to mention that I opposed the vaccination movement, as indeed I have opposed everything which has had a tendency to retard the development of public opinion in favour of the system of isolation and "stamping out" the disease.

I have special reasons to be grateful to the French Government for the confidence reposed in me. Early in September experiments were commenced by Mr. Behic's orders in the New Veterinary College. They led to the thermometric and chemical investigations first attempted by my brother, Dr. Arthur Gamgee, in conjunction with Professor Chauveau. At the present moment, experiments in behalf of the French Government are being actively prosecuted in the Albert Veterinary College, and these opportunities, have enabled me to prepare a work which contains the results of original research as well as those of my readings and of no small an amount of experience in travels and practice.

The Report of the French Minister of Agriculture was based on information repudiated by my countrymen. Times have changed in not many weeks. It is now acknowledged that I was in the right; but this is very slender consolation for one who would have wished to act rather than speak.

This volume might have been compressed into smaller bulk had I omitted the statistical tables up to the close of the year—the latest I could publish *in extenso* without delaying the book; but as those tables demonstrate better than words can describe the early rise and progress of the Plague, I trust they may not be considered out of place. It may also be thought that I have dealt at too great length with the medical treatment of the disease, but what has been said on the subject I have felt it my duty to say in deference to public opinion in this country. The question has not been set aside. Had I consulted my own desires alone I should have dismissed the subject in one short sentence, by pronouncing the uselessness, and deprecating the adoption of curative treatment. We should never treat cases of Plague in Great Britain. They may do what they choose in Russia; but here it is our duty to prevent or exterminate the disease, and not play with it by using drugs. While writing and seeing this work through the press I have been denied the great privilege of sufficient time to do it ample justice. Had I had more leisure I might have said better and more briefly what I have felt it my duty to say—well or ill, at least promptly and honestly.

The publication, for the first time in this country, of the Official Reports of the International Veterinary Congresses is, in my opinion, most important and appropriate now. The discussions which took place both in Hamburg and Vienna referred so much to the Rinderpest, and were conducted by men so able from every part of Europe, that they can only enhance, and enhance largely, the value of this work. They refer, in part, to other diseases, but as they have not been, and are not likely to be, published in any other form here, I have determined on giving them *in extenso.* At no time could the information embodied in both reports be more acceptable to Englishmen than at the present crisis.

In conclusion, the pleasant task devolves on me of thanking many who have helped me. I have had the privilege of very frequent conversations with Dr. Burdon Sanderson, whose experimental inquiry—of the most exact and comprehensive description in relation to the nature of the Plague—has been conducted for Her Majesty's Cattle Plague Commissioners in the Albert Veterinary College. Dr. Beale has kindly lent me the cuts in the last plate of the so-called entozoon of muscle. I have also enjoyed the assistance of my brother Dr. Arthur Gamgee, of my colleagues, and of many others too numerous to mention. To one and all I have to tender my hearty acknowledgments.

Albert Veterinary College, Queen's Road, Bayswater,
London, 5th February, 1866.

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PLATE I. .. .. *Frontispiece.*

Portrait of calf's head in an advanced stage of Cattle Plague.

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FIGS. 1 AND 2.

Entozoon-like bodies of different sizes; elementary muscular fibres magnified with a low power (25 diameters). The longest is $\frac{1}{10}$th, the next $\frac{1}{18}$th, and the smallest about $\frac{1}{5}$th of an inch in length.

FIG. 3.

Rounded extremity of one of the entozoon-like bodies, showing how it is surrounded with the sarcous tissue of the muscle. Magnified 215 diameters.

FIG. 4.

The upper extremity, central part of the body, and the lowest portion, of the same entozoon-like body magnified 215 diameters. The whole of this was surrounded by a thin layer of muscular tissue and sarcolemma. The division of the mass into small collections of granules like segmentation was very distinct.

FIG. 5.

Cilia-like bodies covering the whole surface of the external investment or envelope. Magnified 1000 diameters.

FIG. 6.

a. Portion of membrane with hair-like processes distended with fluid and subjected to strong pressure.

b. Two of the small bodies in their fully developed form from the interior of a very long, worm-like cyst. They all exhibited the characters of the two represented. Magnified by the $\frac{1}{25}$th = 1800 diameters.

FIG. 7.

Tubular space in the central part of an elementary muscular fibre, extending from one extremity of a very young entozoon-like body. Showing minute masses of germinal matter, probably an early stage of development of the bodies found within the envelope of a fully developed organism. Magnified by the $\frac{1}{50}$th = 2800 diameters.

THE CATTLE PLAGUE.

INTRODUCTION.

Any careful observer of the outbreaks of cattle and sheep diseases on the Continent of Europe and in the British Isles, during the past twelve years, could not fail to arrive at the conclusion that, sooner or later, the Steppe Murrain must visit this country. In 1850 I studied the progress of Pleuro-pneumonia in the London dairies. Later, I followed its course in various parts of England, and not only formed but expressed an opinion that, if the traffic in animals, many of which were undoubtedly suffering from disease, could be placed under control, the malady might soon be exterminated. The exposures made in connexion with that traffic placed me in open antagonism with many veterinarians and stock-owners. I therefore resolved on introducing a new system of veterinary teaching and practice, and, for this purpose, inaugurated a school, in which the vast subject of Cattle Disease prevention might receive a proper share of attention. The time and labour devoted to lectures on the Cattle Plague were, however, in the opinion of not a few of our students, thrown away; inasmuch as it was contended that a disease of Russian origin, and almost exclusively confined to the Continent of Europe, could only interest veterinarians in the countries where it usually prevailed. There is now no cause for regret on my own part that many years have been spent in what at first appeared a hopeless task—gathering together and disseminating solid and practical information on a subject which was surrounded by ignorance and beset by prejudice, one result of such investigations being the stoppage in a great degree of the sale and slaughter of diseased animals. In pursuing those inquiries and publishing the results, I have had to bear up against torrents of abuse, imputations as to motives, and gross misrepresentations. To me it was, however, evident that time alone could bring conviction; and that the period required for this was not miscalculated, is manifested by the fact that, in 1857, on the occasion of opening a New Veterinary College at Edinburgh, I said that ten years would decide whether my fears and anticipations were well or ill-grounded. The experiences of 1865 are destined to do much in that direction.

In 1862, I was appointed by Her Majesty's Privy Council to conduct an inquiry on the subject of Cattle Disease in relation to the Supplies of Meat and Milk. My Report was published, and I afterwards urged the adoption of reforms in our cattle trade, the institution of foreign stock markets, and the development of a proper system of veterinary inspection throughout the country. Knowing the importance of strengthening my position by professional support, I summoned a meeting of European veterinarians, to be held at Hamburg. Upwards of one hundred veterinarians from most parts of Europe assembled in that city in July, 1863; and the results of their deliberations were by no means insignificant. The official Report of the proceedings of that Congress will be found in the third division of this work.

In 1864 Government was defeated in attempting to legislate on the subject of the Cattle Disease. That defeat was mainly attributable to a factious opposition, inasmuch as a Select Committee appointed to consider the Bill and take evidence on it, found the preamble proved, and, having modified certain clauses, returned it to the House of Commons for a third reading.

During 1863, 1864, and in the early part of 1865, the Russian Cattle Plague was very virulent in Russia, travelling far westward; and in 1863, the disease penetrated Italy, having passed through Illyria to Ancona.

So convinced was I in 1863 that the importation of diseased animals could not go on without involving our stock-owners in ruin, that I addressed the following letters to *The Times*:—

LOSSES AMONG CATTLE.

(*From The Times of November* 10*th*, 1863.)

SIR,—The letter which appears this day in your columns, showing the great advantages of conveying foreign cattle to London *viâ* Harwich, induces me to ask what additional precautions are being taken to prevent the introduction of diseased animals from abroad, seeing that there is a prospect of the "largest portion of the cattle trade from the north of Europe" never coming under the notice of the inspectors of the port of London. A full cargo of bullocks, calves, and sheep, is said to have been landed at Harwich at 12 o'clock on Sunday night, and they were in the metropolitan market by 10 o'clock on Monday morning. Now, unless I am very much mistaken as to the time required to truck and convey the cattle from Harwich to London, the landing, watering, feeding, and inspecting of the full cargo must have taken place before 6 o'clock on the Monday morning—that is to say, when dark; and if this be the usual practice, I know not what is to prevent the destruction of British live stock to an extent even exceeding the frightful proportions already attained.

I do not seize my pen to write without weighing the effect of restrictions on trade; but, Sir, I am receiving letters by every post from all parts of the United Kingdom complaining of the condition of the lean stock, for which fabulous prices are being paid, and which is at the present time distributing diseases in all directions. As yet there is not a farm I have visited in England or in Scotland on which cattle from the great Falkirk Trysts, and many country fairs, have been taken within the last two months, without suffering from the Foot-and-Mouth Disease. On not a few of the farms the Lung Disease has already appeared, and in many more it must shortly manifest itself with its usual virulence. I have seen not a few lots of cattle bought at 12*l.*, 13*l.*, and 14*l.* a-head, which, three weeks or a month after purchase, have been reduced in value at least 1*l.* per head. When we consider that these animals are to be fattened by next spring, the loss of so much time is a very serious matter; and knowing how universally this loss is sustained, I venture to suggest that we should not overlook the fact, but do all in our power to study how we can encourage trade and protect our cattle from deterioration and destruction. The price of meat is high, and still higher must it go. There is no alternative. Our foreign importations have led to a steady rise in price for years past, and must still favour that rise if we do not check their plague-disseminating tendencies. Are our farmers likely to get the full benefit of high prices? When I look at the reports of markets in your columns I see that, after all, those engaged in the fattening of stock in this country cannot make much money after paying as they do for store-cattle, and incurring the losses which, at the present day, almost inevitably attend the purchase of stock. Many stock-owners have written me of late on this subject, and there is no doubt that they are getting fully alive to the important question of preserving the health of their cattle, and they ask me, how is this to be accomplished?

I hold that the abundant supply of wholesome animal food at a moderate price is so important a question to the people of this country, that there should be inquiries constantly going on as to the condition of our live stock traffic, and as to the influence exerted by that traffic on the production and distribution of disease. The extraordinary prevalence of the Foot-and-Mouth complaint at the present time, which exceeds the formerly unexampled frequency of the malady twelve months since, depends entirely on the condition of foreign stock. This is at the root of the evil. We could not have the disease without its introduction. We never had it before free trade in live stock, and we have it not at present where cattle are only sold and exported from breeding districts. It is perfectly true that many Scotch, Irish, or English cattle leaving their original homes in perfect health prove diseased in the fairs and in the farms they are taken to—but why? The answer to this question has been frequently given this year by practical men who have spoken at various meetings when the subject of Cattle Disease has been discussed. They unanimously say, " Look at the cattle trucks? They are never cleaned out from year's end to year's end, and after conveying one lot of diseased cattle, the mass of filth bespattered on the sides, and lying thick at the bottom of the trucks, is charged with poison which readily infects any animals coming in contact with it."

Foreign stock brought into this country diseased, or simply infected, would not injure British animals, if we learned how to keep it by itself. Our farmers, as a rule, refuse to buy the foreign animals for store purposes, and the great majority of them is sold at once to be slaughtered. This being the fact, and as inspectors never can altogether prevent the admission of infected herds into this country, why do we not dispose of our foreign stock in special markets or in special divisions of the present market, where practicable, and have proper accommodation for their slaughter, or proper means for conveyance beyond the markets, without coming in contact with British stock? Of course, those interested in the foreign trade will pooh-pooh all this; but we cannot allow these gentlemen to continue, as they have done, defying interference and destroying the produce of these islands. Twenty years' experience should open our eyes; and what does it teach us? It clearly demonstrates, that had we never imported foreign cattle we should now be paying less for meat than we are doing. Our breeders, graziers, cattle-dealers, and others, would never have known what it was to lose as they do at present. The production of live stock would have kept better pace with demand, and our people would be better fed. I quite admit, that if our importations had been conducted on a system such as would have prevented the spread of contagious disorders, they would have done us almost as much good as they have done harm. And now, with the wholesale destruction by disease, we could not suddenly check such importations. Let us, however, by all means see how we can counteract the very serious evils attending them. They are not likely to be counteracted by the rapidity of transit achieved on the Harwich route, and there is too much cause to fear that the promptitude with which animals are landed and trucked to London is quite incompatible with their most superficial examination with a view to prevent disease.

I do not wish to prevent our reaping the advantage of the rapid transit of stock; but it appears to me that we altogether neglect precautionary measures, which are essential for the preservation of the health of our own animals, when the foreign trade is acquiring great proportions, and can be carried on with increased facilities. We must watch narrowly unless small-pox in sheep should again reach us. The disease is spreading daily in Prussia and Mecklenburg. I receive weekly reports, which prove that outbreaks of this disease are more numerous this year than last; and it is not unlikely that if we continue to neglect ordinary precautions, as we do at present, we shall soon have even more serious occasion to repent it than for the past. Let our markets rise a little more, and what is to prevent Russian cattle being shipped for our ports? The few Podolian oxen I have seen from time to time in the London cattle-market have been fattened in Prussia; but the time seems to be fast approaching when enterprising traders will accelerate the travelling of stock from the markets in Eastern Europe, where it is purchased at a very trifling cost, and whence we may expect the transmission of plagues which would nearly create a famine in these dominions. I am not dealing with imaginary evils when I have before my eyes, as I write this letter, a statement of the losses sustained by the Russian Plague in the Austrian dominions. During the last fourteen years 500,000 animals have been seized with the disease, and of these 270,000 died. Even that loss is comparatively small when contrasted with the loss we have sustained during the last eighteen or twenty years through the Lung Disease; but if Russian cattle manage to reach our markets—and why should they not?—

we shall certainly have more than the Austrians, whose organisation for the prevention of disease among cattle is perhaps the best in Europe.

Prudent men must agree with me, that under existing circumstances we need something more than the rapid transmission of stock from foreign to British markets. We have already too much occasion to lament the introduction of foreign diseases into these islands, and we must watch lest we henceforward find that, whereas wheat barely remunerates the tiller of the soil for his labour, disease among live stock may irretrievably ruin him.—I am, Sir, your obedient servant,

JOHN GAMGEE,
Professor of Veterinary Medicine.

New Veterinary College,
Edinburgh, Nov. 7th, 1863.

(*From The Times of November* 13*th*, 1863.)

SIR,—Many of your readers may not be aware that every Monday morning the London prices are telegraphed to Hamburg, Rotterdam, and other ports, whence the information is transmitted to such distant markets as those of Vienna and Berlin. If prices suit, cattle and other animals are trucked from these cities for London. The Austrian and Prussian stock is fattened to a great extent on the refuse of distilleries, sugar and starch factories, &c. Among the animals thus fed there are Polish and even Russian cattle. These animals have, however, passed a rigid quarantine on crossing into Austria and Prussia, and we have been protected from the Russian Plague by the precautions taken in Central Europe to check its spread. A century since we suffered, and so did most countries in Europe. It was in consequence of the losses by this Plague that veterinary colleges were first founded and liberally endowed abroad. In this country the most energetic measures were adopted to arrest the progress of the Plague, and with the best effect. Our ports were closed to foreign cattle, and remained so till 1842, with some trifling exceptions in 1839-40. Over the whole country precautionary steps were taken to exterminate the disease, and in this our forefathers succeeded. How different now? We do not prevent disease, but eat all our diseased cattle. Instead of veterinary surgeons being extensively employed to check the progress of maladies, the butcher's services are in requisition when animals are seized with sickness. It is a common occurrence for a veterinarian to be asked, when visiting a case, if it be serious, and any decidedly unfavourable prognosis is sure to be followed by the animal being slaughtered, dressed, and despatched to London.

I could scarcely have hoped for so fortunate a coincidence as the publication of my letter in the same impression of *The Times* as the remarks of your Paris Correspondent on the importation of cattle and sheep from the Danubian Provinces and from Roumelia into France. The project is abandoned, but why? Simply because there remain to be finished 750 miles of railway on one route, and 500 on another. When these railways are finished, or perhaps before then, there can be little to prevent the markets in the West of Europe from being placed in direct communication with the markets in the extreme East. Last century wars and revolutions led to the free transport of cattle in the rear of armies, and thus the Russian and other plagues broke out in all directions. Steam has proved a more certain means for encouraging the transmission of contagious disorders than war, and as yet we have not sufficiently considered its influence for evil in this respect. Your correspondent's observations are quite sufficient to show that I was not dreaming of impossibilities when sounding a note of warning in my letter of the 7th; but if we are receiving Spanish cattle in very fine condition by sea, what is to prevent a fast and suitably built steamer landing at a British port cattle shipped at Memel or Libau? Cattle are very cheap in Russia, and the Russians are turning their attention to the management of stock. If we do not husband our resources in the way of producing and fattening animals in the British Isles, we must depend more and more on the produce of Eastern, plague-breeding plains, and we may find ourselves at no distant period much worse off for animal food than we are at present, notwithstanding every facility being afforded for free trade in stock.

Dearly-bought experience has demonstrated to the Austrians, Prussians, French, and others, that the importation of cattle requires constant supervision. Your own correspondents have this year furnished valuable information concerning the Cattle Plague as it spread through Turkey across the Adriatic and into the Roman States. The area over which this fearful malady has extended of late has been far wider than usual, and it has been found essential on many occasions to enforce a strict quarantine, and otherwise to interfere with the trade in cattle.

For the safety of British stock, and for the instruction of British stock-owners in general, information concerning the health of animals in different countries should be published periodically, and it would be easy to devise a system of showing the diseased and the healthy regions of Europe in maps, which any cattle-dealer could consult. On such maps the course in which plagues spread, and perhaps even the extent and direction of the cattle traffic, could be indicated. In a short time such a mass of information would be collected as to show how we should act to encourage the trade in healthy animals, and effectually to guard against the traffic in diseased ones.—I am, Sir, your obedient servant,

John Gamgee,
Professor of Veterinary Medicine.

New Veterinary College,
Edinburgh, Nov. 10th, 1863.

The past year has been remarkable for the appearance of the Cattle Plague in various parts of Turkey, Austria, and Bavaria. The ravages committed by the disease on the Continent led me to suspect it might reach England even through Germany; and I had made arrangements to go abroad to watch its progress, but was prevented by the steps taken in London to purchase the New Veterinary College and transfer it from Edinburgh to this metropolis. For several years I have been impressed with the conviction that the direction in which the Plague could most readily reach us was through the Baltic. Having a conversation with some literary friends, early in May, on the subject, especially with reference to the rapid diminution in the amount of British animal produce as food for man, I was asked to give my views in an article to be prepared for *Baily's*

Magazine. I did so; but circumstances prevented its publication at the time. It appeared at a later period with an explanatory note by the editor; and is here reproduced verbatim as written in the month of May.

"On Beef.

"What is there in common between sport and Cattle Disease? Why should the pages of *Baily* usually devoted to pleasant recreations above ground, contain lamentations on the death and burial of shorthorns and polled cattle? And draw melancholy pictures of live-stock extermination, and a probable famine from beef shortly realizing twenty pence a pound? Our country readers may, and some of them certainly will exclaim, 'So 'much the better! Rents are rising, and corn is cheap; so the 'more you give us for hides and beef, wool and mutton, the 'better must be our prospects.' It is an undoubted fact that, in many districts, especially in the north, the fabulous sums realized last year for wool saved many a flockmaster from impending bankruptcy. Times have been good, but especially where sheep have been reared, and in remote parts where land has not yet realized fancy prices. The most important question of the day, so far as landowners and farmers are concerned, is, how we are to keep pace with the times in manufacturing the roast beef of Old England? We are quite sure that sporting men will not be bored by a few statistics on this subject; and everyone must know that men of the turf and fox-hunters have done more for the improvement of the breeds of animals than any other class of individuals. Well do we remember the intelligent remarks made, and the keen interest felt by the late Sir Tatton Sykes, during discussions on sheep-breeding. He delighted in ram sales and ram lettings as much as in racing and selling his yearlings. It were invidious to name a few of the members of the Jockey Club, or masters of hounds, who do all they can to encourage the breeding and rearing of cattle, sheep, and pigs. The great majority rejoice in seeing and possessing the finest specimens of these animals that money, the ingenuity of man, and the kind intervention of nature can place at their disposal. It is, therefore, not unreasonable to think they may not be displeased by our comments on beef.

"It has been on the soil of Britain that the first and best lessons have been taught, after hard-earned experience, as to the manner in which breeds of animals of all kinds may be improved, and the means whereby an ox, which in a state of nature is only fit for the knife at from five and six years of age, may attain enormous proportions and maturity at three. Our continental friends have had the choice of our stock, the range of our markets, and a great share of the English beef-eaters' money during the past twenty years; but they have failed to send us animals such as we can rear and feed in any part of the three kingdoms. Though foremost, however, in the art of meat manufacture, we are daily feeling more dependent on our neighbours for animal food supplies. The dearness of beef and mutton, the poverty of foreign as compared with British stock, scantily-supplied markets calling on us to produce more and more, have failed to bring about an increased home-production of meat. In 1851, the metropolis had 2,362,236 inhabitants: in 1861, the number had increased to 2,803,034; or, in other words, food was required, in 1861, for 440,798 people over the number that had to be provided for ten years previously. How was this done? In the eleven years ending 1861, the total supplies of stock exhibited in the London markets were as under:—

"TOTAL SUPPLIES OF STOCK EXHIBITED IN THE LONDON CATTLE MARKET.

Years.	Beasts.	Cows.	Sheep and Lambs.	Calves.	Pigs.
1851	233,761	5,083	1,549,426	21,383	33,954
1852	243,537	6,067	1,452,240	27,225	32,178
1853	269,607	6,030	1,498,772	30,178	32,354
1854	257,167	6,227	1,498,525	24,853	34,280
1855	246,306	5,625	1,423,418	23,420	38,940
1856	252,624	5,841	1,325,474	20,395	34,077
1857	250,224	5,630	1,238,204	23,426	28,232
1858	258,710	6,054	1,335,597	24,164	32,646
1859	256,571	6,007	1,462,036	19,558	30,999
1860	260,122	5,919	1,424,770	25,281	29,676
1861	259,562	6,262	1,378,910	19,000	36,078

"If the above columns are glanced at, we shall find that there is really no increase. Foreign and British sheep are included in the above; and, in spite of high prices, we find only 25,801 head of cattle more shown in 1861 as compared with 1851; and when contrasted with 1853, a positive deficiency of 10,445 head. During the same period, the dead meat supplied at Newgate and Leadenhall suffered diminution rather than increase. Still confining our remarks to cattle, we find that the total number of carcases received at these markets was 10,000 a week less in 1862 than in 1851; and whilst, in 1841, 80,000 carcases were sent to these markets in a single week, in 1862 the weekly amount did not exceed 30,000.

"And how have we been going on since 1861, especially with our home supplies? Comparing the arrivals of stock during the past five years, we obtain some interesting data:—

Years.	Northern Districts.	Eastern Districts.	Other Parts of England.	Scotland.	Ireland.
1860	70,140	78,020	41,920	6,184	9,329
1861	118,450	66,560	27,400	13,298	14,596
1862	74,790	73,470	48,910	13,101	17,365
1863	66,9[illegible]0	70,790	37,580	12,823	12,944
1864	60,350	70,570	39,380	13,543	9,819

"Few would believe that, with the enormous increase in the metropolitan population even since 1861, we should have a progressive diminution in the home supply of cattle.

Years.	Supply of Cattle.
1861	240,304
1864	213,662
Diminution	26,642

"Mr. Robert Herbert, who contributes useful articles on the cattle-trade to the *Royal Agricultural Society's Journal*, refers to the present state of matters, and in his last he says:—

'The consumption in London is increasing every year; prices 'have continued to improve; and even the extensive impor- 'tations from the Continent have failed to affect the value of 'English stock. The question, therefore, of an adequate supply 'of food has become a serious one—more especially as the foreign 'arrivals, with very few exceptions, are still very deficient in 'quality.'

"Writers in *The Times* and other papers have been urging the importance of preventing the slaughter of calves. It is a well-known fact, that the British veal trade has been almost entirely superseded by foreign importations; and in 1864 three-fourths of the supplies of the metropolis were from abroad.

"It is easy to demolish, but how are we to build? We have been sapping our resources, and how are we to replenish the land? Until very recently it was impossible to get people to admit that less animal food was annually available for our ever-growing population. They would not admit the evil. The writer of this article predicted the existing and threatening state of matters fifteen years ago; and the ground of his prediction was, a knowledge of the rate at which animals were destroyed by diseases, imported into this country by the very animals for which our ports were thrown open in 1842. We cannot go on losing seven and eight millions worth of stock annually, without experiencing ill effects in one form or other. The loss is especially serious when we consider that the cows we so much need for the breeding an increased number of animals are the greatest sufferers by the destructive plague. How can the farmer avail himself of the present market rates, if there is no supply of young lean stock? We have known persons purchasing at country fairs pay as much for lean stock as they could get for the same animals after six months' good keep. If the poor farmer has the misfortune of taking his animals home with the Foot-and-Mouth Disease, or infected with the Lung complaint, in addition to losing all the food they have consumed, he is drained of some of the capital which he invested in his purchase. The absence of properly collected agricultural statistics is sorely felt in this country; the course of events has, in relation to the rearing and feeding of stock, been sadly against all except capitalists, who might grow less wealthy but could not easily be ruined. We unhesitatingly say that there is at present no more precarious trade than that of undertaking the fattening of a large quantity of stock. It is possible to reduce the art to a state of less risk than commonly attends it at present; but it is impossible to render the practice as profitable as it should be, without securing the primary conditions of success—cheap lean stock, and prevention from disease.

"To obtain cheap lean stock, we must revolutionize the town-dairy system. We must not permit the annual slaughter, in the metropolis alone, of upwards of 20,000 cows within five months of the date they enter the cowsheds. We cannot afford to lose these animals after having borne one or two calves; and our loss is greatly aggravated by the condition in which both dam and offspring are commonly delivered to the butcher. The cow is as a rule sold suffering from Pleuro-pneumonia, and the calf often has its throat cut to save milk, or prevent its death from diarrhœa. The wants of large towns create a demand; but they, at the same time, curtail our means of providing a supply of stock. We have heard experienced men, dairymen of thirty years' standing, say that when they started business, the poor people had a good supply of milk; a cow would live two, three, and four years, breeding calves, and leaving a large annual profit in milk to its owner. All has changed now; and we are consuming the candle rapidly at both ends. We are exterminating our breeding-stock, and, of course, eating all bullocks that are ripe. The first are chiefly carried off by preventible diseases; and the second succumb in the natural order of things.

"Is it possible that we can hope for an increase in the number of our animals if the only means adopted to avert losses by contagious disorder consist in selling and eating the diseased stock? Four, five, and six per cent. of our animals die now every year in districts where, prior to 1842, one per cent. was far nearer the average. What do we benefit as meat buyers if for every animal we have imported, one or two of our own have been carried off by imported disease? We unhesitatingly affirm that the natural increase in our home supplies of stock would have been enormous, had we not admitted into our markets foreign cattle and foreign diseases. We knew nothing of either when we thought that free trade in meat might exert the same influence on prices as free trade in grain. If we say this, it must not be supposed that we now wish to exclude foreign stock from the country. However much it might be desirable, we could not accomplish this now; but we are in duty bound to do all we can to protect ourselves from the foreign plagues, and to augment, by all means in our power, the reproduction of native stock.

"Admitting that great difficulties encompass the subject, we do not entertain the very common opinion that our condition is quite hopeless, and that we are individually and collectively quite helpless in the devising a remedy. Legislation can do much for us. The proper utilization of capital can also do much, and veterinary science can do more. It is much to be regretted that our Parliament has been misled once or twice on this point. It is true that we have inspectors at our ports; but what is the use of an inspector, if, on the examination of a herd of bullocks, and disease of a contagious character being seen on some of them, those apparently healthy are allowed to come in and contaminate our markets? Many who might have helped to put down the traffic in diseased animals have listened to the absurd argument, that a market must be found for these creatures; they cannot be stopped on the road or in the cattle booth; and if a farmer has the misfortune to buy diseased stock, he is to deal with it as some people recommend should be done with a bad shilling—turn it over to some one else.

"There can be no doubt that as the trade in foreign cattle is now a necessity, we should make such regulations as would prevent the constant and extensive admixture of home-bred animals with those we know nothing of. We should have foreign stock markets, and direct means of conveyance for them from the wharves where vessels unload. Proper and special slaughter-houses should be provided near such markets, and the indiscriminate slaughtering throughout the metropolis should be stopped.

"As we believe that town dairy cows contract and communicate more disease than all other animals put together in this country, we should no longer be satisfied with grumbling about London milk, and the cruelties inflicted on the poor animals in places unfit for their existence, but we should substitute something better. This is undoubtedly possible, and can be proved unmistakably profitable. The development of a rational town dairy system is a task still to be accomplished, and which must well repay its originators. We consider it quite possible to have dairies in the London suburbs supplying pure milk, and in which the cows are preserved in perfect health. We could cite many cases to prove that in the interests of humanity, if not in the cause of social economy, we should revolutionize the present system of town cow-feeding. We hold that man has no right to subject animals to conditions fatal to health, and calculated to destroy rapidly by painful disease. It is certainly more revolting to hear of vivisections than of the deaths of cows from disease in dairies; but no one can fail to regard with horror and disgust any contrivance by which fine and healthy animals, transferred from healthy farms, are subjected to influences which only spare a few of the most fortunate. A dairyman we know well, and who keeps forty cows in a large city, lost thirty-five by disease last year. In paying him a visit recently, we saw two animals with their throats cut; the two had cost him nearly 50*l.*, and had only been in the shed about ten weeks. This man had lost ten out of his renewed stock of thirty within a month. No other trade but that of providing milk for the million would stand such losses; but what shall we say to the effects on the health of infants of the produce of animals existing under such conditions?

Library.

"So long as diseased animals are sold in public markets; so long as dairymen have their animals in small confined places, where healthy and diseased must stand side by side; and so long as the renewal of stock occurs week by week without any security as to its condition when bought, we must have the destruction of cows, and a diminution in the number of calves to rear. Correct the town dairy system, and little else remains to be rectified.

"We cannot leave this subject without reverting to the great difficulty experienced in bringing about reforms in the management of stock. A distinguished surgeon once said that farmers and cattle-dealers would only listen to the adoption of means for the prevention of Cattle Disease when the Steppe Murrain, or Russian Cattle Plague, appeared amongst us. As yet, we have specially suffered from two diseases. The first, or Foot-and-Mouth Disease, is curable, but deteriorates stock to a great extent, damages the milk which affected cows may yield, and spreads not unfrequently to man. We shall probably never again be altogether exempt from attacks of this disease, owing to the certainty of its regular introduction from abroad. The second and most important, because fatal plague, is the contagious Lung Disease, or Pleuro-pneumonia of cattle, which penetrates a country district or farm in a stealthy manner, breaks out tardily, and then destroys with great certainty. It is the Lung Disease that constitutes the bane of the town cow-feeder; and it is to extirpate this plague that the rigid inspection of markets, careful separation, for at least forty days, of all newly-bought animals, and not unfrequently inoculation, should be enforced. The malady can be promptly eradicated and effectually kept from entering any locality; and it is to the demonstration of these important facts that our attention should be turned. Stop the Lung Disease, and the meat manufacture of the British Isles will again prosper.

"Many will remember the cry that was raised in 1857 regarding the Russian Plague. It prevailed much abroad, but owing to the vigilance of the authorities in Austria and Prussia it did not extend beyond Central Europe. It has annually penetrated rather far into the Austrian dominions, and last year entered further westward than either France or England desired. Instead, however, of diminishing, it has increased, and through Hungary it has recently made its way into the Tyrol. At the present time, the Bavarian veterinarians are on the alert from the proximity of outbreaks to the Bavarian frontier, and from Austria we learn that, owing to the unnecessary length of the quarantine period on the Austro-Russian frontier, cattle are smuggled more than ever, and the disease is spreading far and wide. It has, however, to travel far before it reaches us, and through the continent it may not speedily enter our markets. Steamers may, however, some day convey Russian herds of cattle through the Baltic to Leith and Hull. Instead, then, of seeing the healthy animals which are now coming from Jutland, it is not unlikely that the Plague may visit us which is to bring our farmers to their senses on the disease prevention system. The Russian Plague is a malignant catarrhal fever, only due to contagion, invariably propagated from Russia, and characterised by a much greater rapidity in development than is the case with Pleuro-pneumonia. Wherever it appears it is not easy to utilize the carcases, as we find is the daily practice with animals that die of Pleuro-pneumonia; and if any traffic in diseased stock is permitted, the very existence of the horned stock of a whole country is threatened. Long may we be spared any such infliction; and in order effectually to avert it, let us erect a barrier before the steed is stolen. We must acquire and disseminate knowledge relating to contagious cattle diseases, and we must use all the means at our disposal to increase the production of animal food at home."

Within a month of my writing the above article the Steppe Murrain had broken out in England after the first direct importation from Russia. The coincidence is, to say the least, remarkable.

Having, from time to time, been seriously misunderstood, it may be necessary to mention that the foregoing statement of facts has been framed simply in justification of the course I have followed for many years. I do not, nor ever did, pretend to be a prophet. The opportunities afforded me in my European travels, and in the study of continental veterinary literature, irresistibly forced on me convictions as to what was likely to happen, and what should be done to avert what must inevitably lead to great national loss. In this country, as yet, I say it with deep regret, my profession has not taken the position it should have done. More than to any other circumstance, this is to be attributed to the fact that our Government and our people have not rightly understood the duties and responsibilities of that profession. This I state with all deference, and advisedly. The Austrians, Prussians, French, and other continental nations, know that good veterinary schools and a strong staff of intelligent officials conduce to safety from devastating cattle plagues. In England there has been an utter want of unanimity of opinion and concentration of action on the subject; hence the result, that when the Cattle Plague appeared we were totally unprepared to meet and thwart its deadly effects. Great, however, as the present calamity is, there are reasons to believe that in the end it may tend to do good, by future generations reaping benefit from the costly experiences of the present time.

THE CATTLE-PLAGUE.

PART I.

DEFINITION.

THE Plague amongst horned stock which constantly pervades Russia, and especially steppe lands, is a specific, malignant, and highly contagious fever, known to us only as the result of, direct or indirect, communication from sick to healthy animals. It is entirely *sui generis*, and never originates spontaneously beyond the Russian frontiers; within which it is probably not generated at any time *de novo*, but is kept up by constant reproduction, after the manner of other contagious maladies. It is essentially a bovine disease, though it may be communicated to goats, sheep, deer, antelopes, gazelles, aurochs, zebus, and even the peccari—never attacking any animal more than once. It is characterized by a period of incubation which does not exceed ten days; by fever-heat, which precedes all other symptoms; redness of all the visible mucous membranes, seen early and in a marked manner in the vagina of cows; sometimes delirium, muscular twitchings, and fever shivers; discharges from eyes and nose; normal secretions checked or suppressed: abdominal pain with constipation or diarrhœa; scaly eruption on back and loins, and a characteristic eruption on the inside of the thighs and on the mammæ; there is a tendency to early putrefaction manifested by the fœtor of breath and discharges, and emphysematous swellings in various parts of the body before death; after death rapid decomposition sets in. The majority of animals seized with the Cattle Plague, as a rule, die wherever the disease appears, except among Russian herds. No specific antidote has been discovered for its poison.

SYNONYMS.

Under the term Murrain several diseases, principally affecting the ox tribe, have been described, which have a common tendency to destroy many animals at a time, and to be propagated more or less by contagion. The disease known abroad as the Rinderpest, *la Peste Bovine*, and spoken of here as the Cattle Plague, has in times past been included under the general designation Murrain; so that histories of the disease, especially with reference to remote periods, are somewhat unreliable. All outbreaks of pestilence, in which men and a variety of animals have suffered, cannot be ranked with manifestations of the malignant fever now under consideration. Not only the term Murrain, but also the multiplicity of names given to the true disease of the Russian steppes, has led to confusion. Many of these names, especially those adopted at different times by German authors, have been suggested by peculiar theories as to the nature of the disease, as for instance :—Löserdürre, impaction of the third stomach; Gallenseuche, Uebergalle, Grossgalle, all having reference to the condition of the liver; Magenseuche, or gastric plague; Bösartiges Ruhrfieber, or malignant dysenteric fever, based on the general features of the disease, viz., dysentery and fever. Of the Latin names given to the disease, the best, because the least open to technical objection, is Pestis Boum, in French *Peste*, or *Fièvre pestilentielle du gros bétail.* The one most commonly used abroad is Typhus Boum Contagiosus—*le Typhus contagieux des bêtes bovines*, of the French authors. This long designation is not a proper one, as it conveys to our minds the erroneous idea of the disease partaking of the characters of typhus. Other authors have designated it Ganglien-Typhus, and more properly Viehseuche. I originally suggested the name Contagious Typhoid Plague, or Contagious Typhoid Fever of the Ox, from reading descriptions and seeing coloured plates of the intestinal lesions which indicated a similarity between the steppe disease of cattle and typhoid or enteric fever in man. Ramazzini names the eruption Systematic Cow-pox. I object to Dr. Budd's title, "The Siberian Cattle Plague," because it is apt to lead to confusion with the Siberian Boil Plague—an enzootic rather than an epizootic disease—a form of anthrax which never spreads far beyond the Russian dominions, and which is unknown in healthy districts even in Siberia itself. The Siberian Boil Plague attacks cattle, but principally men and horses; and although there are at times wide-spread outbreaks, these occur under the influence of excessive heat, during the hottest months of the year; and there is frequently no connection between simultaneous manifestations of the malady at different places. There is simply a coincidence as to time, and not a propagation of the disorder from one district or province to another. Its causes are local, as it depends entirely on peculiarities of soil and climate. This is not the case with the Rinderpest.

By common consent the name by which the epizootic of the Russian steppes is best known now in this country, is that of the Cattle Plague; and as there can be no mistake as to what is meant by this designation, I shall use it very generally in this work.

CAUSES OF STEPPE MURRAIN.

Diseases of all kinds are attributable to predisposing and exciting causes. The majority of maladies require a combination of agencies to induce them; but there are some which can only be developed by one unchangeable and specific means, which we designate contagion. A sheep can only become scabby by the scab-insect creeping on its body, and there multiplying. A dog only becomes rabid by the virus of another rabid animal entering its system; and scientific men are agreed that an animal can only be seized with Rinderpest as the result of direct or indirect communication of the Rinderpest virus from a diseased to a healthy animal. These are accepted truths which somewhat shock the minds of people unacquainted with the mysterious operations of nature. The question occurs to most persons, whether under extraordinary circumstances these contagious maladies are not generated *de novo?* Concerning the Cattle Plague it is said that, whilst we can admit the fact that it is never witnessed as a spontaneous disorder in Europe to the west of Russia, it must be developed on the soil of the steppes, or in Russian breeds specially predisposed to its attacks. All we can say is, that as yet no one has demonstrated that in the steppes cattle can be placed under such circumstances, apart from being subjected to the influence of contagion, as can induce the disorder. The disease is always there, roving to and fro, winter and summer, amongst cattle of all kinds, sometimes killing many, and at other times attacking few—but so constantly present that Jessen, Unterberger, and others consider it absolutely essential to inoculate every head of horned stock in Russia, that the disease may not appear where least expected, and with a view to afford some security to the nations importing Russian cattle. They believe that the cattle of the steppes should be placed under such circumstances as to enjoy the reputation of being safe from subsequent attacks, and having been seen through the results of inoculation with a sufficient lapse of time, they would be incapable of conveying the disorder. My belief is, after searching in vain for evidence of the spontaneous development of the Rinderpest in Asiatic or European Russia, that the malady—just like human small-pox—is never developed *per se*, out of nothing, but is propagated in obedience to immutable laws, such as those which operate in perpetuating small-pox in man. There are periods of recrudescence which are to a great extent accounted for by periodic and extraordinary movements of stock, as in times of war, or by an activated cattle trade; but neither cold nor heat, rain nor drought, storms nor severe frosts, affect the propagation of the malady, except in so far as they affect the movements of people and the traffic in cattle.

The predisposition said to exist in the cattle of the steppes—the special idiosyncracy which has been spoken of—is observed during outbreaks in Western Europe to manifest itself in rendering the disorder less severe, far less malignant, in the cattle of Russia than in any other known breeds. Jessen tells us that foreign stock in Russia, acclimatized and bred there, succumbs from attacks of the disease as rapidly as in its native country. Thus Devon cattle imported into Russia, bred there, for years continue to indicate a terrible susceptibility, and are rapidly exterminated when the disease is communicated to them by accidental contact or artificial inoculation. It is difficult to understand that these animals, manifesting an extraordinary susceptibility, should not, as it is proved they do not, suffer from spontaneous manifestations of the disease, which have been regarded as likely amongst the less susceptible herds of the steppes. I do not believe that the flesh and blood of the Russian cattle are impregnated with this malady. I do not believe that they inherit it as human beings do scrofula, and I am strongly disposed to regard the specific poison of the Cattle Plague as obeying the same laws of reproduction as those which we know regulate the development of the virus of variola.

We are asked again—How did the first case occur? We must give an Irishman's answer, and ask—How did the first case of human small-pox or hydrophobia occur? We can prove absolutely nothing as to their primary origin, and all we can say is, the most careful observations show that the transmission and procreation of certain animal poisons, including that of the Cattle Plague, obey laws similar to those which govern the transmission and procreation of living organisms. Some day we may know more of the vitality of animal poisons. We now know that their destructive operations are not more extraordinary, and the reasons for their existence not more unfathomable, than those of many parasitic plants and animals which seem to live and to multiply by undeviating processes of generation, only to shorten the existence of the higher orders of the animal or vegetable kingdoms.

It is strange, but true, that the poison of the Steppe Murrain may be compared to any living organism which only requires a favourable habitat for its indefinite increase. Just as the scab-insect lives and breeds almost exclusively on the skin of a sheep, so does the Cattle Plague virus grow in quantity only when it meets with conditions favourable to its fructification in the systems of bovine animals. This statement is not affected by the occasional appearance of the disease amongst goats, sheep, and other animals; for we well know, after the experience of centuries, that whatever animals may be in a country, whenever the horned stock has succumbed the disease vanishes. It does indeed inflict some damage on flocks of sheep; but its slow and imperfect propagation amongst them indicates that it needs a more favourable nidus for its perfect and complete development.

If all known facts seem to favour the view that the Russian Murrain owes its origin to contagion alone—even in Russia—no one having a knowledge of the subject believes that any other cause can induce it beyond the confines of that country. Numberless outbreaks traced without doubt to contagion, and the certainty with which the early slaughter of diseased animals extinguishes any manifestation of the malady, even in countries where it appears often, have tended to discard from our minds the possibility of any spontaneous development of the Plague over the European Continent, in the New World, which it has never visited, or in the islands of the globe. It is singular, and it is very instructive, that the disease should alone be kept up in a country such as Russia. The conditions there are all in favour of the perpetuation of contagious maladies; and it is important to mention that even small-pox in sheep is preserved in Europe by its constant presence and frequent recrudescence in Russia.

The view of the purely contagious nature of Rinderpest is materially strengthened by the definite knowledge of the origin of all diseases, which undoubtedly originate spontaneously in various parts of the world. The Siberian Boil Plague, which has been confounded with the Steppe Murrain, is one of those enzootic disorders due to excessive heat in the broad plains of Siberia, and especially in certain spots where an elevated temperature operating on retentive and ill-drained soils produces a malady which certainly acquires contagious properties, but which ceases with the advent of cold and the washing of miasmata into the earth. The Siberian Boil Plague springs suddenly into existence, is propagated a certain distance, but cannot spread far, after the manner of purely contagious disorders, which are not influenced by seasons or weather. I could mention many similar instances, were it necessary, and there is none better than that virulent blood disease which has gone on increasing of late in this country in districts where farmers grow the largest crops by liberally distributing manure on fertile soils. That disease is Splenic Apoplexy, which has been studied on the Northumberland hills, in the fens of Lincolnshire, and the Somersetshire pastures. Professor Voelcker traced in his laboratory one of the potent causes inducing this malady in the West of England, and proved how wrong it was to give animals water charged with the products of organic waste, such as nitrites and other salts. Our knowledge is sufficient now to distinguish an enzootic disease at once; and, so far as Great Britain is concerned, we should know, and do know, what we owe to our climate, soils, and systems of culture, and what we may regard as of foreign importation. The Russian Cattle Plague never did and never can appear here but as an imported pestilence. All who have seen this disease must, at all events, admit its highly infectious and contagious character. The air surrounding a diseased animal is impregnated with volatile poison, and every part of the animal's system is charged with the same principle, but in a tangible form capable of being carried on the point of an inoculating needle, and of being plunged with effect into the tissues of a healthy ox.

Admitting, therefore, that contagion is the great and all-potent exciting cause, it may be well to enter into details on two points. We must first discuss whether certain conditions directly affecting an animal render its system more than ordinarily susceptible to the disease; and, secondly, what external conditions favour the propagation of the virus.

I. CAUSES AFFECTING THE ANIMAL'S PREDISPOSITION.—*Individual susceptibility* or *idiosyncracy* affects the communication of the disorder to some, though to a very limited, extent. We no doubt have the striking illustration of the Russian ox, which is often attacked in a mild manner; and so we find in this country that a herd is killed out in five days, and another of a very similar kind is not killed out in a month, and several animals do not suffer at all. This fact is partially explained by the poison sometimes growing weaker as it passes from herd to herd. We witness this with all poisons; and hence the great importance of guarding against fresh importations of virus, even during the prevalence of the Steppe Murrain in a country. It is deeply to be regretted that, after the disease was communicated from England to Holland, the Dutch ports were not instantly closed. The broader the area over which the poison can meet with favourable conditions for its development, the greater the tendency to severe recrudescence during an outbreak.

There are some unaccountable instances of constitutional immunity; and animals in this country have appeared to withstand the disease with effect, or it has attacked them so mildly as scarcely to be observed. This, it is true, is extremely rare; but has been observed sufficiently often to indicate that, whatever may be the cause, one animal is very susceptible, and another less so, to attacks. We cannot ascertain the special predisposition until the effects of contagion on an animal have been witnessed; but that it is remarkable is proved by two yearlings of the same sex, out of one herd, which I inoculated on the same day, and with poison from one animal. One of the calves thus inoculated suffered very severely, then suddenly rallied and recovered. The second appeared to suffer less, lingered on, and died. It is impossible to explain why this discrepancy in results should occur. We must rest content with the fact, and can only ascribe it to the different susceptibility of the two animals. In another case that I know of, a fine healthy calf, submitted to the influence of contagion, was seized with the disease, and died in forty-eight hours; whereas a cow, which one might have thought very susceptible, resisted the contagion for some time, was at length seized mildly, and recovered. I need not multiply instances of this description.

Age exerts no influence on the disease. Kersting has, however, said that, as the result of inoculation, young calves and cows suffer most severely; lean or fat oxen are also badly affected; but animals in moderate condition and at maturity seem to bear up best against the disease.

As to the influence of sex, it would appear that, as with other contagious maladies, cows yielding milk are very susceptible. The same is seen with women after parturition: if subjected to the influence of contagion, they are, it is generally believed, readily seized with small-pox or diphtheria, scarlatina or typhus, and probably much more so than men, and women not suckling children. Pregnant animals readily catch the disease, but probably not so readily during gestation as at the period of calving.

The conditions under which animals are kept do not seem to have much influence on the character and rapid spread of the disorder. We believe that as a rule the disease will be most speedily propagated where animals are congregated in a shed under one roof. Indeed, numerous instances have occurred of animals, by being separated, escaping the disease, and, although it is virulent enough in the open air, the cases do not follow each other quite so rapidly as where the cattle are housed. A proof of the aggravation of the disease amongst housed stock is its general manifestation where sheep are constantly penned with cattle, and the common escape of these animals when they only mix with oxen or cows in the open air. Dr. Maresch, who first described the Cattle Plague in sheep with accuracy, showed that the malady was only rife in flocks housed with bovine animals. The question then arises, does the housing affect the constitution of animals, or does it simply concentrate the poison? It is not improbable that it acts in both ways. Every one agrees that the depressing effects of bad ventilation, of breathing an impure atmosphere, tend to aggravate and accelerate the malady, though there are not wanting cases to prove the exact contrary. The same is observed in other contagious diseases; and I have known two herds of heifers belonging to the same owner, one housed and the other in the fields, seized with Pleuro-pneumonia about the same time. The housed herd, by no means kept cleanly, suffered little, whilst few survived in the open fields. These are inexplicable results which indicate how careful we should be, when discussing questions bearing on the Cattle Plague, in declaring that "this stands to reason," or "that common sense would suggest," and making use of similar vague expressions which are only cloaks for our ignorance.

I am a great believer in fresh air, wholesome food, and pure water; but there is absolutely nothing to prove that animals die more readily from the Cattle Plague where the ventilation is imperfect, and the food and water far from being of the best quality. In London, some of the cleanest sheds, containing as fine stocks of cows as could be seen in the world, were amongst the first affected; and other sheds, where the manure is usually knee-deep, the grains sour, and the water of inferior quality, have not yet been visited by the Plague.

II. Causes affecting the transmission of the Virus.—It is understood that the poison of the Cattle Plague comes from abroad, and there are those who think that it may be the result of confining cattle for days and nights together in crowded ships, surrounded with dirt, ill fed, and supplied with an insufficient quantity of water. Vivid descriptions have been written of the heat, fœtor, and steaming sweat which rises from the holds of ships engaged in the cattle traffic. We are asked if it be possible that animals should be thus ill used without suffering from any or all diseases; and the Foot-and-Mouth Disease, Pleuro-pneumonia, and the Cattle Plague, which differ in intensity, but not in character, have each been ascribed to these general causes. It is certain that mal-treatment is not invigorating. It may lead to suffocation or severe constitutional disturbance; but, in spite of all the mismanagement in bringing cattle across the sea, no case of specific disease has, to my knowledge, ever thereby been induced. However much the animals may suffer, they can only die of the Cattle Plague with varying rapidity when that Plague is brought amongst them by a diseased beast or infected materials.

The same remarks apply to markets, farmyards, and town cowsheds. The filthier these places are, the greater undoubtedly the facilities for infection; but no amount of filth ever produced a specific outbreak of Lung Disease or Rinderpest. We concentrate the poison in foul places, but we do not create it.

We can, with some show of reason, attribute to steam power the outbreak of contagious diseases in this and other countries during the last quarter of a century. But steam has operated in facilitating locomotion and in placing distant parts in regular and rapid communication with each other. Before countries were intersected, as they now are, by railways, it took several days to transport animals a distance of one hundred miles. Now, should beasts suffering from disease exchange hands in the London Cattle Market on a Monday, they may be in Edinburgh on the Wednesday, Glasgow on the Thursday, and in any other town in Britain within three or four days. This may be termed a direct result of the railway system in facilitating the communication of disease; but there are other, and special, circumstances connected with this system of carrying cattle, which conduce to the rapid spread of contagious diseases. For some years past I have drawn attention to the use of dirty railway trucks, which are often charged with organic poisons from sick animals; also to the conveyance of diseased animals in trucks often forming part of a cattle-train, many trucks of which are filled with store stock for farmers. It required the recent visitation of Cattle Plague to bring about an improvement in these respects; but what short-sighted policy it was on the part of the authorities not to insist, before the Rinderpest was at our doors, on a careful supervision of railway conveyances, so that valuable animals consigned to the Companies for transmission from place to place might be protected against contagion. Not only have railway-trucks been a means of propagating disease, but the pens or enclosures at railway stations, from their filthy and neglected state, have considerably contributed towards that end.

I have been asked if, on the whole, it is not safer to travel cattle by rail than by road through any country in which disease prevails? No doubt it is safer if the trucks are kept pure and attention paid to counteract influences which may favour infection at stations or in transit. It is of course better to move an animal in a pure van or truck than to walk it along roads where its feet may plunge in excrement or its lungs inhale the breath of any sick animal passing, and which, by some strange fatality, is sure to be approached. Cattle are inquisitive, and sheep flock towards sheep; so that if they meet animals of their kind, and especially sick ones, they are sure to run up to them and smell about, and thus endanger their own lives.

It was the knowledge of the readiness with which animals walking through roads and streets could be subjected to the influence of contagion which led me at the first outbreak of the Cattle Plague to recommend closed vans for the movement of sick and infected animals. Nothing, however, has been done to secure this desirable object; and we still see cows carried on horse-slaughterers' carts, or moved about, as in Edinburgh, in temporary conveyances, open on all sides, and affording no protection against contagion to cattle driven past them.

The excrement which drops from animals affected with Rinderpest, and which are driven or placed in trucks or vans, is highly charged with poison. It readily communicates the disease, as has been proved by myself and others, by inoculation; and it is well known that if a cow places its foot in a mass of this excrement, the chances are that it will be inoculated. The intestinal gases have been collected and then discharged by the diseased animal, so that if healthy cattle inhale these gases, the probability is that they will contract the disease. The discharge from sick animals generally, and their manure in particular, are very apt to secure an indirect contagion. The greatest care should therefore be exercised not to disseminate the poison by such means.

Food which has been mouthed or breathed on by sick cattle is capable of communicating disease, and this should always be kept in mind. It is not easy to determine if water, under the same circumstances, has a contagious effect. Some persons have supposed that if animals with the Russian Plague drink from a river whose waters run through other farms or districts, the disease may be carried by the stream to great distances. This I do not believe, inasmuch as water is a great purifying and diluting agent, and even all the poison that a large herd of cattle may drop into a river can have no effect, as it passes on in an enormous mass of water, which effectually weakens and destroys it. The case is different if animals are made to drink out of a common pail or trough; for, in such a case, it is not so much the water that carries the virus as the sides of the vessel containing that water. It may be noted, however, that cattle of different farms often stand for hours together in a stream at only a few yards apart; and here, as in the drinking-trough, the virus contained in the discharges may reach healthy animals unchanged, and thus lead to their contamination.

In countries or districts where contagious diseases prevail amongst cattle and sheep, we find that slaughter-houses are favourable for their dissemination. This is due to the fact that plague stricken animals are taken there for slaughter, are sometimes kept alive for hours, or even days, and, when killed, much that is charged with virus escapes in surface-drains or on an open causeway, so that, within a certain radius, there is a chance of contaminating healthy stock.

One way in which the Cattle Plague may be carried from diseased cattle or from a slaughter-house is unquestionably by flies, which, after resting on the carcase or offal of sick animals, fly about, rest again on the animal, especially on any wounded parts, and thus produce a direct inoculation. If flies can carry putrefying matter in this way, and, by alighting on fresh meat, can set up rapid putrefaction, it is reasonable to conclude that they can convey particles discharged from diseased stock to healthy animals. Unaccountable outbreaks may sometimes be due to this cause.

Any place in which many animals affected with Rinderpest are slaughtered must charge the surrounding neighbourhood with enough poison to kill large numbers of cattle; and I cannot understand why, since the commencement of the present outbreak, no attempt has been made to prevent the slaughter of cattle near the high road to our Metropolitan Cattle Market, or in the slaughter-houses directly adjoining that market. The hides and meat of diseased animals carry the infection. In Hungary, I am told that one common cause of a Rinderpest outbreak on a farm is the hawking about of the flesh of animals slaughtered during an attack of the disease. If the water in which such meat is washed be thrown into a yard to which cattle have access, an outbreak is almost sure to follow. Jessen speaks of cattle becoming infected by drinking the water used in soaking or washing salt meat.

Slaughter-houses and the traffic in hides and meat are probably not so active in favouring the spread of the Rinderpest as cattle-dealers' farms, and the changes of stock which necessarily occur there. I have had occasion to remark in my travels that cattle-dealers' farms are often the centres of districts infected with contagious diseases. Not only do some dealers buy and sell infected cattle knowingly, but even those who are honest are liable to get disease amongst their flocks and herds, and their neighbours suffer from the proximity of pastures, the dung of cattle on the roads, or the communication between places by human beings or animals other than those capable of taking the malady. The grazing of cattle in neighbouring fields, feeding them on the road-sides, driving them along paths through fields where there is a right of way, are all potent circumstances in the dissemination of Rinderpest.

No one doubts that dogs which feast on the carcases of diseased animals are very liable to carry infection. I have been consulted more than once as to the probability of a pack of fox-hounds carrying infection over a country by passing through fields containing sick cattle, and afterwards crossing healthy farms. It is possible that a pack of hounds may carry much excrement charged with organic poison from one field to another; therefore, in an infected district hunting should, in my opinion, be discontinued. Human beings, as well as quadrupeds, are accused of harbouring the poison and distributing it, and no doubt they do carry it more or less if great care be not exercised. I have been assured that in Russia one common cause of widespread outbreaks was the practice of calling priests and people together to pray in the cattle-sheds that the Plague might be stayed, and the assembled people moving thence from farm to farm. Vicq d'Azyr demonstrated last century, that if clothes worn by attendants on diseased cattle were placed on sound stock, three animals out of six would be seized with the disease.

Without entering into further details, I may state that the causes here enumerated as affecting the transmission of the Cattle Plague are not imaginary, but real; there are also other means of communication, concerning which I need not say more at present.

Enough to mention, that farmers and others who have anything to do with Rinderpest must regard it as a purely contagious and specific disease, incapable of spontaneous development, but most readily and certainly communicable from diseased to healthy cattle, and sometimes from cattle to sheep, or *vice versâ.*

SYMPTOMS OF THE CATTLE PLAGUE.

The recognition of this disease is greatly facilitated, especially when it first appears in a herd, by a knowledge of its prevalence in any district or country. I mention this, as in many diseases we have premonitory signs, similar to those of the Cattle Plague; and it is especially when we know of its existence in or near a country, district, or farm, that the earlier symptoms are of value. Indeed, when an outbreak is studied, great importance should be attached to the period which elapses from the introduction of a diseased animal or other source of infection, to the first appearance of sickness in a stock.

Every specific fever has its period of incubation—that period during which the poison is insidiously attacking the system of a man or animal—and there is no more distinct feature of the Cattle Plague than its latent stage. From four to seven days is the usual period of incubation. It often extends to a week, but very rarely indeed beyond the eighth day. Some say it may be as short as twenty-four hours; and others, that it occasionally extends to twenty-eight days. There are no reliable facts in proof of these extremes; but there is a large amount of evidence to show that an animal may be regarded as absolutely free if it does not show signs of disorder within ten days after having been exposed to the contagion.

This question was fully discussed at Hamburg in 1863, and at the second Congress in Vienna last August; and although one or two distinguished Veterinary Professors feared the adoption of a system of quarantine for Russian cattle based on the ascertained fact, that the incubation of the Steppe Murrain never exceeds ten days, it was not disputed that the evidence was conclusive as to the duration of the latent period of this disorder.

Indeed, recent inquiries and observations would lead one to regard the incubative stage as not often exceeding six days, though the earlier or premonitory signs of an attack are not apparent to non-professional observers. I consider this point of the greatest importance in relation to the subject of veterinary inspection, and one affording scope for many experiments as to the facilities offered for the prevention of the disease by recognizing sickness in animals before they become dangerous from the discharge of that poison, which is the cause of the propagation of the malady. Whenever medical treatment may have to be tried, it is at this early period that good results may be anticipated. I inoculated two yearling heifers in Edinburgh in the month of September. These were the subjects of careful study by my brother, Dr. Arthur Gamgee; and his observations, made before and after the communication of the disease, led him to suggest the importance of examining with the greatest care changes in the temperature of the body from the earliest moment of an attack to the period of convalescence or death. I have since then instituted careful thermometric observations, with a view to detect at the earliest possible moment what animals have been affected in a herd.

A delicate thermometer indicates an elevation of temperature in the earliest stage of the disease, varying from one to four degrees Fahr. The elevation precedes the acceleration of the pulse and every other symptom. I have usually inserted the bulb, and about two inches of the stem of the thermometer, within the vagina or rectum, and kept it in a couple of minutes, using the precaution of dipping the instrument in water at 100° Fahr. between each observation, so as to prevent discrepancies. When one of Casella's registering thermometers is used, the warm water into which the thermometer is dipped should not exceed 90° Fahr., and I commonly add a little Candy's fluid to the water, so as to disinfect the instrument. The normal temperature varies from 100° to 101°, and may rise to 102°. It is not uncommon to find it in healthy animals varying one or two degrees at different periods of the day, so that reliable observations can only be made on a number of cattle at the same time, obeying in all the same conditions as to the instrument used, the part in which the observation is made, whether it be the rectum or vagina, and the length of time the instrument is inserted, &c. Sometimes, when animals are excited on a hot day, and are hurried into a shed from a field, the thermometer may rise one or two-tenths more than usual; but if a whole stock be examined, any animals suffering, however slightly, from the disease, indicate an elevation amounting even to five or six degrees. Such an exaltation of temperature is generally incompatible with health, and the only exception yet known to this rule is that observed during œstrum or sexual excitement; the temperature then rises three or four degrees, and the same may be seen just after parturition. It is probably preferable to introduce the thermometer into the rectum, as animals are restive when the bulb is inserted in the vagina. To indicate the nature of observations in herds in which the Plague has appeared, it may be well to furnish some examples. On a farm where the disease had just broken out, I took the temperature of 18 animals, which looked in blooming health in the field, not one showing any sign of dulness, loss of appetite, or other disturbance, and the result was as follows:—

No. 1. temp. in vagina	102·2	No. 10. temp. in vagina.	101
,, 2. ,, ,,	101·2	,, 11. ,, ,,	102·1
,, 3. ,, ,,	101·1	,, 12. ,, ,,	100·4
,, 4. ,, ,,	101·1	,, 13. ,, ,,	105·2
,, 5. ,, ,,	101·2	,, 14. ,, ,,	100·2
,, 6. ,, ,,	100·2	,, 15. ,, ,,	101·1
,, 7. ,, ,,	100·4	,, 16. ,, ,,	105·3
,, 8. ,, ,,	101·1	,, 17. ,, ,,	101
,, 9. ,, ,,	100·2	,, 18. ,, ,,	102·3

Having carefully taken the temperatures, I proceeded to examine the animals, and could detect slight deviations in the breathing, and colour of the vaginal mucous membranes, in Nos. 1, 11, 13, 16 and 18. The two cows which gave the mos decided indications of a fever heat had a glairy discharge from the nose, and a slight blush on the mucous membrane of the mouth; but although all these animals were being watched night and day by men of ordinary intelligence, who manifested a great desire to serve their master, no suspicion had been entertained as to their condition.

A better illustration of the value of watching the animal heat in cases of the Plague is furnished by notes on an outbreak at Corehouse, near Lanark. I was requested by Miss Edmonstowne Cranstown to visit her stock of Ayrshire cows in consequence of a case of supposed contagious Pleuro-pneumonia having occurred. I reached Corehouse on the morning of the 17th of November, and ascertained that an animal seized with illness on the 9th had died on the 14th. A second case had occurred on the 15th, a third on the 16th, and on my examination on the 17th six more animals were found ill. On the 18th I examined forty-two cows with a delicate thermometer, which I dipped in water at 100° Fahr. before each observation, and inserted the instrument into the rectum of each animal as far as that portion of the stem marked 80°. The pulse of the animals was taken at the time, and the results are given below:—

	Temp. °	Pulse.
1.	106·2	64
2.	106·2	64
3.	106·5	64
4.	106·2	84
5.	106·	72
6.	106·2	72
7.	106·3	82
8.	106·	62
9.	106·2	72
10.	106·3	64
11.	105·2	72
12.	105·5	60
13.	105·3	92
14.	104·1	84
15.	107·2	92
16.	106·	72
17.	107·8	72
18.	107·8	72
19.	107·4	108
20.	105·8	72
21.	106·6	96
22.	107·	84
23.	106·8	78
24.	107·	72
25.	106·6	96
26.	105·	92
27.	107·	72
28.	104·8	72
29.	107·	60
30.	107·2	66
31.	107·4	60
32.	105·8	84
33.	105·6	72
34.	105·3	75
35.	105·5	68
36.	106·3	78
37.	106·3	74
38.	105·	68
39.	106·4	68
40.	104·8	66
41.	107·	68
42.	102·	69

A glance at the above temperatures affords proof of all the animals having been seized. Not one was free, and still many indicated but slight, if any, acceleration of pulse or breathing. Several were eating and ruminating—others were giving a full quantity of milk; and persons unaccustomed to inquiries of this kind might have walked through the herd and not noticed that the cattle were in ill health. Only one or two had slight discharge from the eyes. None had diarrhœa. One, No. 19, with a temperature of 107°·4 and a pulse at 108, was breathing fast, and the respirations numbered no less than 72. Another cow, in a somewhat advanced stage of sickness, discharged urine of a dark-brown colour, and half-a-dozen gave but a very scanty quantity of milk. It is evident then that the thermometer afforded the most certain and unequivocal results, and this is further proved by twenty-five animals having succumbed by the 22nd, and only five remaining in life on the 25th, in spite of careful nursing and the best medical treatment. I deputed Mr. David Menzies of Bellfield, one of my most trustworthy Edinburgh students, to watch the cases and note carefully the temperatures of all. Fifteen cases may be quoted to indicate the state of the pulse and temperature during the progress of the disease. The observations were made each morning, beginning on Sunday the 19th, and it will be seen that some animals lived two, some four, five, and six days.

CASE 1.

Date.	Temp. °	Pulse.
19th	106·	84
20th	106·2	86
21st	106·3	88
22nd	104·	87
23rd	103·	98

Died on the night of Thursday the 23rd.

CASE 2.

Date.	Temp. °	Pulse.
19th	105·8	60
20th	105·	72
21st	100·	Extremely frequent.

Died during the night of 21st.

CASE 3.

Date.	Temp. °	Pulse.
19th	107·	66
20th	106·2	68
21st	105·	72
22nd	98·	120

Died at night.

CASE 4.

Date.	Temp. °	Pulse.
19th	106·2	65
20th	103·	96

Died on Monday night.

CASE 5.

Date.	Temp. °	Pulse.
19th	105·	60
20th	106·2	65
21st	106·	68
22nd	105·8	88

Died on Wednesday night.

CASE 6.

Date.	Temp. °	Pulse.
19th	106·	120
20th	105·8	126

Towards evening the temperature fell to 98°, and the animal died during the night.

CASE 7.

Date.	Temp. °	Pulse.
19th	105·8	72
20th	104·	78
21st	101·	92
22nd	97·	120

Died shortly after the last observation.

CASE 8.

Date.	Temp. °	Pulse.
19th	106·	84
20th	107·	86
21st	105·	92
22nd	104·6	110
23rd	102·	126

Died on Thursday night.

Case 9.

Date.	Temp. °	Pulse.
19th	107·	72
20th	107·2	88
21st	105·	96
22nd	101·	120

Died at night.

Case 10.

Date.	Temp. °	Pulse.
19th	107·	68
20th	106·	84
21st	105·8	98
22nd	104·	102

Died at night.

Case 11.

Date.	Temp. °	Pulse.
19th	105·	74
20th	105·4	86
21st	105·	98
22nd	104·6	98

Died during the night of the 22nd.

Case 12.

Date.	Temp. °	Pulse.
19th	105·2	96
20th	105·	98
21st	106·	98
22nd	105·	112
23rd	105·	118

Died during the night of the 23rd.

Case 13.

Date.	Temp. °	Pulse.
19th	105·8	56
20th	106·	58
21st	106·2	64
22nd	107·	72
23rd	106·2	86
24th	104·	98

Died on Friday night.

Case 14.

Date.	Temp. °	Pulse.
19th	107·6	72
20th	106·	78
21st	106·	80
22nd	101·	120

Died during the night of the 22nd.

Case 15.

Date.	Temp. °	Pulse.
19th	105·2	74
20th	106·	78
21st	106·2	86
22nd	106·	92
23rd	106·	98
24th	96·	120

Last observation taken a few hours before death.

These cases prove :—

Firstly. That the temperature is much exalted when the pulse indicates slight or no variation from the normal standard.

Secondly. That there are variations in the frequency of the pulse and the temperature during the course of the disease.

Thirdly. A sudden lowering of temperature usually, if not always, precedes death. In the cases quoted above, where the temperature last taken is marked as high as 105° and 104°, death did not take place until ten or twelve hours after the last observation.

Fourthly. With the lowering of temperature before death there is a greatly increased frequency of pulse, varying from 120 beats per minute to such a rate as to render observations almost impossible.

When animals recover, the temperature decreases gradually till it reaches its normal standard. There is an absence of very marked and sudden change. The transition from sickness to convalescence occurs steadily and with regularity.

I consider it impossible to over-estimate the importance of thermometric observations such as those referred to, and although similar results may be obtained in the investigation of other diseases, it is evident that the thermometer affords unerring as well as early evidence of an animal sickening, recovering, or about to die. No other indication is so unmistakable and satisfactory; and though there are other febrile diseases associated with an early elevation in temperature, it must be admitted that, taken with the history and symptoms of the case, the accuracy afforded by thermometric observations is of the highest moment. It is somewhat remarkable that the observations now for the first time published were not long since made and recorded abroad.

The visible premonitory signs consist in shivering, muscular twitchings, and uneasiness. In some cases there is dulness, and in others excitement amounting even to delirium and associated with remarkable sensitiveness. There is often a short husky cough.* The appetite is irregular, capricious, and then entirely lost; rumination ceases. The animal grinds its teeth, yawns, arches its back, and draws its legs together under its body. The eyes, nose, and mouth are dry, red, and hot. The extremities are cold, though the internal heat is high. Constipation, as a rule, exists; and secretion is generally arrested, as indicated in milch cows by the milk at once ceasing to flow. The respirations are often, but not invariably, increased in frequency; expirations succeed the inspirations tardily, and with each there is a low moan; the temperature continues to rise, though the animal's skin becomes rigid, and indicates functional derangement by a staring coat, dryness, and eruptions.

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* Dr. Smart says that "there is no cough or lung symptom in the pure and uncomplicated examples of the disease." This does not accord with my observations.

The redness of the visible mucous membranes, especially of the gums, lips, papillæ on the inside of the cheeks, is partial, pale and patchy at first. Dr. Weber has spoken of the aphthous eruption of the mouth, the aphthæ being of circular or indefinite form, covered with whitish yellow granular exudation which adheres very slightly and is easily removed. He also speaks of the redness of the papillæ of the cheeks as always beginning at the apex. Jessen has published a pamphlet on the appearance of the buccal membranes which he describes as sometimes consisting in small round nodules (seldom larger than a millet seed) still covered with epithelium when discovered, through which a yellowish or yellowish grey material can be distinguished. Within 24 hours the epithelium gives way and the contents become visible. The result is a superficial lesion, which soon heals. In other cases the nodules become confluent, and form a considerable enervated ulcer with irregular margins. The so-called aphthæ are described by Jessen as small vesicles due to raising of the epithelium, and either contains a clear watery or a turbid fluid, and leave behind round flattened excoriations with even edges. My observations in a considerable number of cases have shown that on the inner surface of the lips, on the inside of the nostrils, and other parts of the mucous membrane, there are at first scarcely visible whitish opaque specks about the size of a small pin's head. These are the starting points for the softening and desquamation of epithelium which results in the dirtyish yellow flaky appearance in some of the worst cases.

When a number of milch cows has to be examined, one of the first symptoms to look for is redness, and a mottled appearance of the lining membrane of the vulva and vagina. Animals in apparently perfect health, eating well, ruminating, yielding a full quantity of milk, are seen to have a reddened condition of the mucous membrane of the external organs of generation. The redness of the vagina also occurs in animals that have recently calved, and it is important to guard against this source of fallacy. In many cases the continuous rigors and singular muscular twitchings of the face, ears, and neck, may be regarded as characteristic. They are not, however, so typical as the discharge from the eyes and nose, which soon appears, and which, from being glary and watery, changes shortly to a turbid secretion. No symptoms can better illustrate the care required in diagnosis than the discharge both from the eyes and nose. The French Commission conducted a series of experiments in my establishment in Edinburgh, and great care was exercised in purchasing animals free from Rinderpest, especially for inoculation experiments. Three animals were bought one day, and all had a glary discharge from the eyes and nose. The person who had procured the animals was certain of their being free of plague, and the herd from which they were obtained was inspected. All, without exception, had the discharge. They had been exposed to easterly winds in an ill-sheltered field, and were suffering from a slight catarrh: this was afterwards satisfactorily proved by the course of experiments.

A marked symptom is restlessness; lying down and rising again, sometimes looking round to the flank, and by drawing the hind legs forward, denoting more or less colic or abdominal pain. Animals often lie on the left side, with the head stretched across the right flank. Severe diarrhœa sets in, and the animal becomes very thirsty. Emphysematous swellings are apt to form at this period, and there are exacerbations of all the symptoms towards night-time. The discharges are all fetid, especially in severe cases. The urine is rather scanty, and generally, if not always, albuminous. This stage lasts about three days.

The symptoms increase in severity. The dysentery is aggravated, and the animal becomes extremely weak. It stands and walks with difficulty, and lies much. The pulse becomes feeble and indistinct at the jaw. It beats from 90 to 130 per minute. The discharge from the eyes, nose, and vagina increases. The cough becomes less audible and soft. On the buccal and Schneiderian membranes, as well as in the clefts of the feet, there is a deep redness with flaky discharge of epithelium. The muzzle, angles of the mouth, and membrane round the nasal orifices are sometimes ulcerated, with a greenish-yellow and somewhat dense granular and epithelial deposit. On opening the mouth a similar change about the base of the tongue and on the inside of the lips is often found. The coldness of the extremities, or of the body generally, the stupor or drowsiness, quick breathing and fœtor of the exhalations, with spasmodic action of the alæ nasi, jerking respiration, and moaning, are among the most unfavourable symptoms. The fæces, at first dark, become slimy, charged with masses of detached epithelium, are very fetid and more or less tinged with blood. The urine acquires a dark colour, due to the colouring principles of bile. Cows abort, and all symptoms of sensibility or consciousness gradually disappear.

I have seen many cases which presented from the earliest moment great disturbance of the organs of respiration. A hacking cough, depressed and protruded head, spasmodic action of the nostrils and flanks, indicate serious pulmonary lesions. Emphysema takes place, and usually begins in the anterior lobes. Dr. Weber remarks that the anterior intercostal spaces become somewhat fixed, whereas the posterior true ribs are raised with an effort, and sink rapidly. On percussion the thorax is found to be very resonant, and this resonance becomes greater as the emphysema increases. On auscultation, râles of various pitches are heard, either accompanying the vesicular murmur or superseding it. The heart's sounds become inaudible, and impulse imperceptible on the left side.

As death approaches, the mucous membranes often acquire a leaden hue; the erosions are marked, and blood-spots, or ecchymoses, occur. The partially open and dark red or otherwise discoloured aspect of the inner surface of the lips or the vulva cannot fail to be noticed at this stage. The involuntary evacuation of excrement, extreme fœtor of all discharges, tendency to tympanitis, muscular twitchings, lowering of temperature, and increasing listlessness, betoken the approach of death.

In some cases there are signs of improvement about the third day, and then a relapse occurs. Animals may become quite convalescent; but still the gastric or intestinal lesions advance, and when least expected, a fortnight or three weeks after marked improvement, alarming symptoms supervene, severe diarrhœa occurs with the return of other discharges, and the animal soon sinks and dies.

In favourable cases we find a cutaneous eruption on various parts of the skin, especially on the neck, back, and teats, not unlike cow-pox, and Ramazzini termed the malady the Cow-pox Plague, from the skin affection and the state of the mucous membranes observed in this disease. There are instances of severe illness and death with this eruption, and indeed, in bad cases, we sometimes find a dirty yellow appearance of the skin of the back and a desquamation of epidermis which indicates a morbid process of the skin, similar to that affecting the mucous membranes. The surface of the skin over the neck and withers is often moist or greasy from an abundant sebaceous secretion. There are no vesicles and an entire absence, as a rule, of pustules. In some cases I have seen somewhat flattened nodules, presenting the characters of false cow-pox, as described by Hering and others. Guersent, in his 'Essai sur les Epizootics,' speaks of the eruption in mild cases as observed on the mammæ, teats, and on the inner surface of the thighs, in the form of small eminences of conical form, analogous to the most common variety of false vaccine; and Professor Gerlach assured me recently that this symptom, which he saw rarely here, has been much more common in Holland, where the disease has been less virulent than in Great Britain.

Convalescence is indicated by a certain vivacity, return of appetite, equable temperature of the body and extremities, restored secretion of milk, moist muzzle, and other well-known signs of health.

As with other fevers, we find in the Rinderpest a marked periodicity in its manifestations. Improvement in the morning, exacerbations at night; a distinct subdivision of an attack into stages, and from the date of the crisis either sudden aggravation or gradual abatement of alarming symptoms. There are at times chronic cases, as in Lung Disease, and animals get into a hectic state, out of which they cannot be rallied. It is, therefore, evident that the duration of the malady varies. I have seen animals dead in the evening which had only indicated active signs of the complaint for the first time during the early part of the same day. As a rule, death occurs from the third to the sixth day.

The mortality varies greatly. Amongst Russian cattle mild cases are of common occurrence, and animals pass through the disease manifesting very few and light symptoms. Nevertheless, the losses in Russia are not trifling, yet the death of one in four animals seized is regarded as not at all severe. To the westward of the Russian empire the Cattle Plague exterminates stock on the farms which it penetrates. From 80 to 90 per cent. and upwards may be reckoned as a usual mortality; and under the most favourable circumstances 53 and 56 per cent. has been witnessed. We are apt to speak of decimation as indicating a frightful mortality; but during outbreaks of the Rinderpest the saving of two or three out of every ten in an infected herd is regarded as being as good an average as can reasonably be expected.

From the frequent reference made in the following pages to the outbreaks of last century, I think it may be of interest to reproduce here Dr. Layard's* description of the symptoms of the Plague. He says:—"As we observe in the small-pox and all other putrid or eruptive fevers by which human nature is infected, a regular progress, so in this pestilential fever is the course of the contagion through its several stages to be traced by the symptoms. All are not equally seized; many reasons may be assigned for a slight or violent infection; but, according to the degree of infection, the diagnostics or signs are more or less the same. The first appearance of this infection is a decrease of appetite; a poking out of the neck, implying some difficulty in deglutition; a shaking of the head, as if the ears were tickled; a hanging down of the ears, and deafness; a dullness of the eyes; and a moving to and fro in a constant uneasiness. All these signs except the last increase till the fourth day. Then a stupidity and unwillingness to move, great debility, a total loss of appetite, a running at the eyes and nose, sometimes sickness and throwing up of bile, a husky cough and shivering. The head, horns, and breath are very hot, while the body and limbs are cold. The fever, which was continual the three first days, now rises and increases towards evenings; the pulse is all along quick, contracted, and uneven. A constant diarrhœa, or scouring of fœtid green fæces, a stinking breath, and nauseous steams from the skin, infect the air they are placed in. The blood is very florid, hot and frothy. The urine, or stale, is high-coloured; the roofs of their mouths, and their barbs, are ulcerated. Tumours or boils * are to be felt under the panniculous carnosus, or fleshy membrane of the skin, and eruptions appear all along their limbs and about their bags. If a new milch cow be thus ill, her milk dries up gradually, her purging is more violent, and on the fourth day she is commonly dry. There is such acrimony or sharpness in their dung, that a visible irritation is to be observed during some time *in ano*. They groan much, are worse in the evening, and mostly lying down. These symptoms continue increasing till the seventh day from the invasion, on which generally, though sometimes protracted till the ninth, the crisis or turn takes place."

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* An Essay on the Nature, Causes, and Cure of the Contagious Distempers among the Horned Cattle in these Kingdoms. By Daniel Peter Layard, M.D. London, 1757.

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* Evidently the emphysematous swellings.

SYMPTOMS IN THE BUFFALO.

The Cattle Plague attacks the Buffalo in countries where this animal is used for the purposes of draught, and is subjected to influences capable of leading to infection. In this animal, however, the symptoms are not very severe, the disease is not deadly, and from the contrast in the rate of mortality offered by herds of buffaloes as compared with oxen, it is sometimes scarcely credible that the same type of Steppe Murrain attacks both. The manifestations are nevertheless unmistakable, and consist principally in general febrile symptoms, discharges from the eyes and nose, erosions on the gums and lips, marked cutaneous eruption on the udders of the females and the rudimentary mammæ of the males, together with the diarrhœa so commonly seen in the disease. About the seventh day the crisis is attained. In severe cases death occurs about the fourth or fifth day, but more commonly after the sixth or seventh day there is a diminution in the severity of the symptoms and a short convalescence.

SYMPTOMS IN THE SHEEP.

The Cattle Plague amongst Sheep is characterized by comparatively mild symptoms, and frequently speedy restoration to health. In 1857, Dr. Kreutzer first described the symptoms of the Cattle Plague as observed on a sheep which had been inoculated on the 1st of October. The period of incubation lasted till the 9th, and was followed by general disturbance, discharge from eyes and nose, prostration, moaning and diarrhœa. The animal died on the 13th.

Dr. Maresch observed the disease more carefully from 1860 to 1863, and since then much information has been obtained. The period of incubation extends usually to seven or eight days; languor and dullness appear with redness and prominence of the conjunctiva at the inner angle of the eye. There is a yellow discharge which trickles down the face, and a viscid phlegm flows from the nostrils ; the head droops, and there is grinding of teeth; the appetite is diminished and capricious; rumination suspended, fæces thinnish, and partly adhering to the hind legs and tail; there is an occasional cough, with frequent pulse and laboured breathing. The pulse rises from 120 to 160 beats per minute. Ewes not unfrequently abort, or bring forth weakly lambs which afterwards rally. It is not at all unusual for the disease to cease at this period, and the animals to recover rapidly. In other cases the diarrhœa increases, there is painful straining, or tenesmus, panting respiration, very feeble pulse, and the animal sinks. Great weakness, awkward gait, and somewhat severe nervous or convulsive symptoms mark fatal cases, when death occurs about the 4th, 5th, or 6th day from the commencement of the disease. When a case takes the more usual and favourable turn, there is more liveliness, improved appetite, restored rumination, less discharge from the eyes and nose, and diminished frequency of pulse and respirations. The animals are quite convalescent in from 10 to 14 days.

In some cases, such as those observed by Dr. Leicht in 1860, the disease is more rapid. The animals stagger, lie down much, shake their heads, have a dense discharge from the eyes, are subject to diarrhœa, and die sometimes within 24 hours of the first appearance of premonitory signs.

There are as great variations in the symptoms in sheep as there are amongst cattle. Some cases differ from those described above, as the animals stand, are dull, and keep apart from the flock; there is no appetite, no rumination; constipation at first, followed by diarrhœa; arched back; elevated temperature of the skin; eyes sunken and discharging; from the nose a quantity of dense greyish yellow flaky matter drops, and the mucous membranes of the mouth and nose are reddened, showing erosions and desquamations of epithelium; the breathing and pulse are accelerated; there is pain on pressing the loins, and at last general prostration.

SPECIAL SYMPTOMS IN CASES OF CATTLE PLAGUE COUPLED WITH PLEURO-PNEUMONIA.

The animals seized with the two diseases at once are observed to suffer from greater prostration and more laboured breathing at the outset. The short grunt of Lung Disease begins early, there is spasmodic action of the nostrils, and, on auscultation, the impervious condition of the portion of the diseased lung is ascertained. Any one acquainted with the two diseases can readily recognise such cases.

SPECIAL SYMPTOMS IN CASES OF CATTLE PLAGUE COUPLED WITH THE FOOT-AND-MOUTH DISEASE.

It is more difficult to diagnose Rinderpest in its earliest stages when epizootic aphtha has attacked a herd. Smacking of the lips, eruption and salivation, exist; but the greatest reliance is to be placed in the usual lameness and morbid condition of the feet in Foot-and-Mouth Disease, as also the usual eruption on the teats, and tendency to congestion and inflammation of the udder. When the Cattle Plague advances, there is the shivering, discharge from the eyes and nose, the diarrhœa and prostration, not usually seen in epizootic aphtha.

POST-MORTEM APPEARANCES.

The lesions are somewhat peculiar in different stages.

In the first stage there is redness of the mouth, fauces, larynx, pharynx, and the mucous membrane of the fourth stomach, especially near the pylorus, as well as the lining of the small intestine ; there is a uniform colour or redness around the glandular follicles, and red spots or streaks on the membrane. The neighbourhood of the glands, both solitary and agminated, is red, swollen, and open. The surface of the membrane is more or less denuded of epithelium, but covered with a viscid, tenacious, reddish, or bloody secretion, more or less mixed with the intestinal contents; and in the submucous tissue there is a turbid, semi-fluid exudation. In the large intestine the lesions are few. There is a general redness of the cœcum, as of the mucous membranes in other parts of the body, not excluding that of the urinary and generative organs. The lesions of the first stage are not absolutely characteristic of the disease, as they indicate a more or less congested condition of the respiratory passages of the alimentary canal and of the organs of generation, which may exist in other diseases; but coupling the above lesions with the changes discovered specially on microscopic examination as affecting the epithelium, and a number of similar cases occurring one after another in any place, the nature of the disease may be determined.

In the more advanced stage, the morbid lesions are characteristic.

There are cases in which the lesions exist principally in the respiratory passages, and the alimentary canal is singularly free of disease. There are others in which all the mucous membranes of the body are seriously involved. The mucous membranes from the exterior nares to the larynx is of a dark red colour with a dense secretion on its surface, and patches of yellow deposit covering portions of the membrane which is unprotected by its natural layer of epithelium. Around the larynx this deposit, composed mainly of altered epithelium, is dirty, and of a greenish-yellow colour, of cheesy consistence, and often very abundant. The interior of the larynx is of a deep red colour, containing more or less purulent looking matter, and in some cases the exudation extending down in the trachea and bronchial tubes is of a peculiarly tenacious and firm character. There is a specimen in Vienna where the deposit on the mucous membrane of the trachea has much of the appearance of the exudation of croup. I have drawn out of the bronchial tubes imperfect and friable casts made by this exudation, and when placed in alcohol they retained a considerable degree of solidity and firmness. In such cases the mucous membrane is all of a deep red colour, with a dirty looking deposit on its surface, and a complete destruction of the normal ciliated epithelium. The trachealis muscle is of a dark red colour, and the muscles of the larynx are also somewhat deep in hue. The lungs are somewhat congested, swollen, and their interlobar and interlobular tissue is distended with air. This emphysema is extremely marked in cases in which there is very laboured breathing prior to death.

During the present outbreak, and especially in Edinburgh, many cases have been seen in which one or both lungs were affected with Pleuro-pneumonia, and the violet coloured mucous in the bronchial tubes has been especially fetid in many cases of this description which I have examined. Dr. Murchison says that the bronchial tubes are often filled with frothy mucous, and with the inflammatory products thrown off from the mucous membrane, but the lungs and pleuræ exhibit little congestion, and no signs of inflammation except on occasional complications. I have not seen any decided hepatization except in cases complicated by Lung Disease, and the serous membranes always escape in simple Plague. It is true that there are ecchymoses beneath the endocardium and pericardium, and sometimes the blood extravasations beneath the inner lining of the heart are very extensive, but the membrane itself is intact.

On examining the mucous membrane of the alimentary canal the mouth is found to be excoriated, the epithelium thrown off the membrane lining the lower lip and gums. Flaky epithelial deposits of a yellow colour abundant, and the papillæ are red, tumefied, and even raw. The tongue is foul with a greenish-yellow deposit about its base, and this exudation sometimes extends down the œsophagus. In one case this was so marked that I was induced to make a water-colour sketch of the somewhat unusual condition. Guersent says that the membrane of the mouth and its continuation in the pharynx is very often of a dark red or violet colour, and studded with aphthæ or little ulcers. From examination I found there was an absence of epithelium in patches, and a simple exposure of the reddened membrane. There is no deep ulceration.

The first three stomachs are not, as a rule, much affected. In protracted cases the epithelium of the rumen has been seen to detach itself readily, or be already removed on first examination, and ulceration has been witnessed. Both in the reticulum and omasum is found, in some cases, a somewhat reddened mucous membrane beneath the epithelium, which sheds off freely. Too much importance is not to be attached to the manner in which the dark epithelium of the omasum adheres to the dry contents of this stomach, for even in health, and especially in any diseased condition in which there is impaction of the third stomach, this appearance is observed. There are protracted cases of the Cattle Plague in which the caves of the omasum are deeply reddened in more or less circumscribed patches, and the membrane may here die and give way on the slightest pressure. Such lesions I have seen in Pleuro-pneumonia and cases of chronic impaction of the third stomach.

The fourth stomach is the seat of specific lesions. In the early stage there are patches of deep, with more or less diffused, redness. The membrane is swollen, especially near the pylorus, and there is a singular mottled aspect observed, on somewhat close observation, from the greyish epithelial deposit in the glandular openings. The epithelium is detached with great facility. Erosions and ulcerations are not uncommon. Referring to the fourth stomach, Dr. Murchison says that "There is not only intense redness, with much adhesive mucus on the surface, but the membrane is studded with numerous minute superficial ulcers, like those erosions which are so common in the ordinary catarrhal inflammation of the human stomach. In addition the membrane often presents extensive patches of claret-coloured discoloration, apparently due to submucous extravasation. These patches are often surrounded by a distinct fissure of the mucous membrane, and, in some instances, the mucous membrane corresponding to the patch is in a gangrenous state, and more or less detached." His description is generally correct, though Dr. Murchison overlooked at the time the condition of the epithelium in the gastric glands, and its desquamation or altered state on free surface.

The small intestine is no less reddened than the stomach. There are cases in which the intestinal mucous membrane is singularly free of disease. There are others in which the very general blood extravasation which has occurred in the mucous tissue has undergone a singular change, and acquired the colour and characters of a melanotic deposit. In these cases there is simply an open perforated aspect of Peyer's patches, and in others these glands seem to have disappeared altogether. I was much astonished, when I first studied the Cattle Plague carefully, to find the discrepancy occurring between the observations and writings of foreign authors and what I could myself trace in the bodies of dead animals. As a rule, the membrane is more or less reddened and deprived of its epithelium, and no doubt the reddened Peyer's glands have a perforated appearance, and at all the apertures there are little yellowish-white plugs of exudation, which are readily squeezed out. In the vicinity of these deposits, and more or less throughout the intestine, there is a free discharge from the mucous membrane. The microscopic examination of this discharge indicates the rapid desquamation of epithelium. I have repeatedly seen epithelial masses, such as the one roughly sketched at Fig. 1, which I sketched for an illustration in one of the earliest cases of the disease I witnessed in this country. Granular corpuscles and nuclei of epithelium abound; and in proportion to the depth of the reddish-brown colour of the intestinal contents, have we a more or less abundant accumulation of altered blood in the form of granular masses of the colouring-matter of that fluid.

In very severe cases the free surface of the mucous membrane of the small intestine, extending over one or more feet, is covered by a discharge of a greyish or dirty red colour. A similar slimy secretion is sometimes seen in the cœcum, as well as in the colon and rectum, where there may be redness of the mucous folds, and superficial erosions, or excoriations.

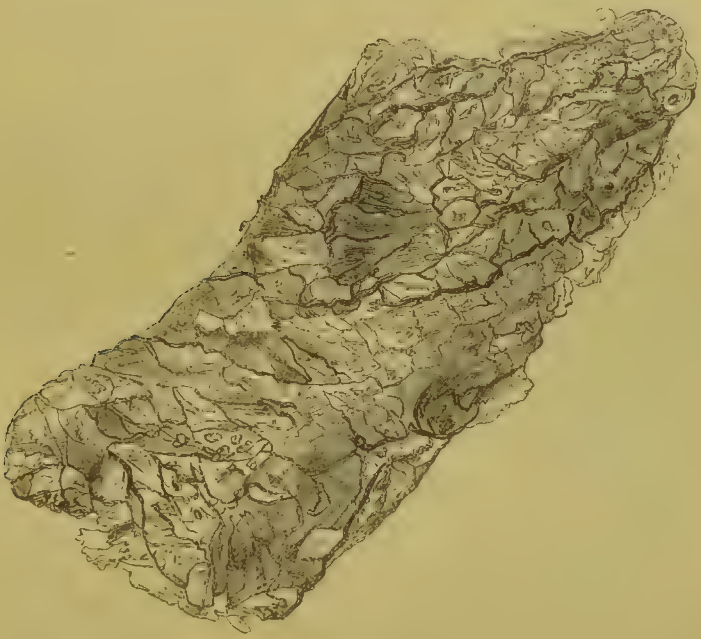

Fig. 1.

Dr. Murchison has written at length on these points, and, from his knowledge of enteric fever in man, his observations are of great value. He says:—

"The small intestine is more or less inflamed throughout, but the inflammation is usually most intense about the middle. The coats of the bowels are much attenuated and softened, while the mucous membrane is intensely injected, and sometimes ecchymosed and deprived in a great measure of its epithelium covering, but coated with a quantity of transparent and viscid, or opaque and puriform, secretion. I have failed to discover any change of the solitary glands of the ileum which could be ascribed to the disease. Peyer's patches are usually less vascular than the surrounding mucous membrane, and throughout the disease very much less elevated and thickened than in a healthy animal. Their component glandules are more distinctly seen, because the epithelium covering which obscures them in health, has been mostly removed. Many of the glandules seem empty, while others contain a minute drop of softened secretion like pus, which can be squeezed out by the slightest pressure. There are no submucous deposits, and none of the lesions running through the definite stages, which I am familiar with in the typhoid or enteric fever of man. In this opinion I am corroborated by Dr. A. P. Stewart, Mr. Simon (Medical Officer of the Privy Council), Dr. Buchanan (my colleague at the Fever Hospital), Dr. J. Burdon Sanderson, and many other physicians who have dissected the animals, either in conjunction with me or independently. It is right to mention, however, that in all the cases which I have examined, many of the solitary glands, and sometimes certain of the component glandules of Peyer's patches, have been greatly enlarged, filled with a soft cheesy matter, and sometimes even ulcerated on the surface. A drawing of an inflamed piece of bowel studded with these enlarged glands might readily be thought to represent the lesions of enteric fever. Careful examination, however, clearly shows that the appearances in question are of old standing, and quite unconnected with the disease of which the animals have died. This view of the matter is confirmed by the fact that I have found precisely similar appearances, in some cases indeed even more strongly marked, in the small intestines of every one of four healthy oxen which I have examined."

I have carefully examined the condition of the solitary glands, and in the very first post-mortem of the Cattle Plague which I made in this country, on the 30th of July last, I had an opportunity, through the kindness of Dr. Jeafferson of the London Fever Hospital, to compare the condition with what is observed in human typhoid, and the similarity was considerable. I have here (Fig. 2) a sketch of the material obtained from the interior of one of the solitary glands. That the intestinal lesions are, as a whole, entirely different from those of the typhoid fever of man is, however, unquestionable, and is fully borne out by the observations of Dr. Murchison, which agree in all respects with those which I have made.

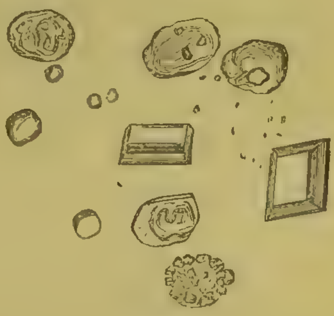

Fig. 2.

In some lean-conditioned animals the exudation on the surface of the mucous membrane is not seen. There is a tenacious albuminous, yellowish-white or reddish-brown fluid, deposited in or beneath the mucous membrane of both small and large intestines.

The other organs of the body do not indicate many specific changes. The liver is of a dark colour, and its ducts and bladder full of bile. The kidneys are often healthy, and sometimes red and swollen. The bladder moderately distended with urine. The spleen is neither enlarged nor softened—a circumstance of great interest when taken in connection with the condition of this organ in the typhus and typhoid fevers of man, and in which it may be said to be uniformly altered.

The mesenteric glands are often swollen, contain a yellowish-red exudation, and may attain twice their natural size. The blood is dark semi-fluid; it usually congulates slowly but very perfectly. It abounds in the arterial system in many cases, and, as already indicated, has a tendency to transude in various parts of the body. These transudations are seen at times beneath the skin and serous membranes, as well as in the mucous surfaces. I have examined the blood microscopically, and I have not observed the serrated condition of the corpuscles which has been noticed by Dr. Smart. In some cases I have found a great excess of white corpuscles, and in others delicate needle-shaped crystals, which are probably hæmato-crystalline, form in the blood, after this fluid has been drawn from the body. (See Figs. 3 and 4.)

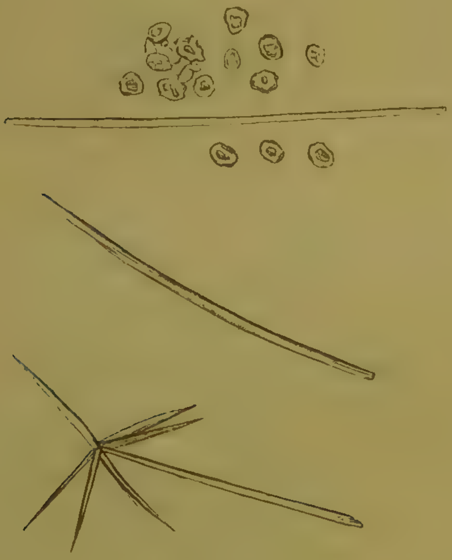

Fig. 3.

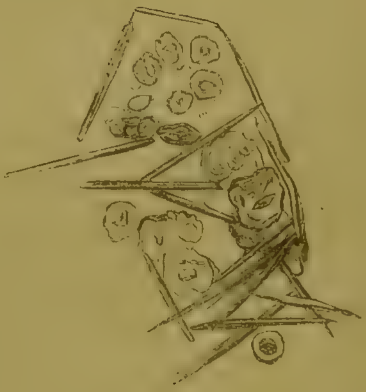

Fig. 4.

The nervous centres are not as a rule much changed. The meninges are dotted with blood extravasations. The nervous substance is redder than usual, and softening of the spinal cord has been described. It appears that there are instances in which a change allied to acute red softening occur; but on this point we need further observations.

The examination of the nervous system, still imperfect, particularly occupied the attention of Dupuis, and in many post-mortem examinations made during the epizootic of 1795 and that of 1814, he invariably noted the following appearances: The spinal marrow softer and more injected than in the natural state; the pia mater, often a little redder, contains between its duplicatures a great quantity of limpid and transparent serum. This serum is so abundant, especially towards the lumbar region, and the medullary substance is in this place so much softened, that the latter is reduced on being touched into a kind of pulp, and judging solely from the state of the spinal cord, a species of hydro-rachitis would be thought probable. The cellular tissue of the lumbar and sacral nerves, where they join the spinal cord, is ordinarily gorged with sanguinolent serum, and in a cow observed in 1795, the nervous filaments were sprinkled with very small black ecchymoses. The brain is not nearly so soft as the spinal cord. Most frequently it appears to be healthy; sometimes, nevertheless, it is more injected, and the meninges are also redder. The ventricles are also very often filled with an abundant, and sometimes lemon-coloured, serum. M. Dupuis has seen in one case the arachnoid dotted with little black ecchymoses. He has observed the same alteration upon the plexus choroides. Vicq d'Azyr has only twice seen the cerebral substance softened and yellowish; but the alteration was without doubt accidental and foreign to the principal malady. I have usually found redness of the meninges of the brain, deep redness over the medulla oblongata, especially in those cases in which the breathing was very laboured during life, and on puncturing the dura mater from four to six ounces of a clear fluid escaped. The mucous membrane of the organs of generation is always red, tumified, and the epithelium undergoing changes as seen on the mucous surface of the organs of respiration and digestion. There is no doubt that the state of the inner lining of the uterus and vagina is very characteristic, especially when coupled with the many other lesions above described.

MICROSCOPIC RESEARCHES.

The most interesting account yet published on this division of my subject, is that by Dr. Brauell of Dorpat, who was induced to make a special journey to the South of Russia in 1861, for the purpose of ascertaining what the microscope would reveal as to the special nature of this disease. The results of Dr. Brauell's researches have been summed up by himself in the following words :—

" A. *Natural Rinderpest.*

" 1. The epithelium of the mucous membrane of the digestive apparatus is detached. No part is preserved from this loss, though it is least seen in the rumen and reticulum, and most in the mouth, fauces, œsophagus, third and fourth stomach, and the intestine.

" 2. On the mucous membrane of the lips and gums the epithelium desquamates in small circumscribed spots, whereas in other parts the separation occurs generally, or off large patches.

" 3. During, and probably before, the separation of epithelium, a fatty degeneration of the epithelial cells, and consequently their partial change into molecular masses, occurs. In the intestinal canal this change is not observed, as here the epithelium is thrown off altogether; the same process, however, occurs in the intestine that is seen in the fauces.

"4. In the mucous glands of the mouth and pharynx, there is simultaneously with the discharge of epithelium, and probably before it, a new formation of cells; in the glands of the fourth stomach and of the small intestine, there is an exuberant development of cells first seen when the epithelium is detached, but probably before this separation occurs. The newly developed cells sooner or later change into a molecular mass, which for a time adheres in patches to the mucous membrane.

"5. On the mucous membrane of the lower lip it is common to find on small circumscribed spots, an excessive formation of the elements of areolar tissue of which the so-called nodules are formed.

"6. The mucous membrane of the mouth and pharynx, of the fourth stomach and small intestine, is sometimes thrown off either in small or large circumscribed patches just like the epithelium in molecular masses. The result is well defined loss of substance—the hemorrhagic erosions or superficial ulcers of authors—or there are wide and not sharply defined detachments of membrane in the small intestine.

"7. The follicular nodules of the fourth stomach, as also the so-called ulcers on its surface, are connected with the cell changes already described.

"8. In the solitary glands of the small intestines the multiplication of cells occurs, which ends at all events in partial destruction of the tissue. The so-called plastic exudations and croupous deposits from the follicles, the vesicular eruptions and the ulcers of the solitary glands described by authors, all owe their origin to the nature of the cell changes.

"9. The vascular tissue of the solitary glands occasionally suffer the same change as the other elementary forms of these structures, and thus the exudation in the follicles is modified as sometimes seen.

"10. In Peyer's glands the same process goes on as in the solitary ones; the cell development is, however, more marked in the first than in the last.

"11. The epithelium of the mucous membrane of the respiratory organs is thrown off.

"12. In the mucous glands of the membrane lining the respiratory passages, there is the cell multiplication associated with the extraordinary development of the elements of connective tissue, whereby the detached masses are accounted for. The separation of these is the end of the process.

"13. The membrane of the organs of respiration is sometimes thrown off on certain well defined spots, and thereby suffers loss of substance.

"14. There are never and nowhere exudations of lymph.

"B. *Rinderpest as the result of Inoculation.*

"15. Notwithstanding the benignant nature of the disease so that only indistinct symptoms are seen during life, scarcely distinctive of the Rinderpest, there are peculiar morbid lesions to be observed.

"16. In the Cattle Plague developed by inoculation there are the same changes as in the malady induced naturally, but differing both as to extent and intensity. Thus the detachment of the epithelium of the organs of digestion occurs only on certain spots, not in the intestine nor in the respiratory organs. There is even a less cell development in the mucous glands of the mouth and fauces, and the cell changes in the solitary and agminated glands are much less marked than in natural Rinderpest. That the disease induced by inoculation is sometimes attended with extensive and serious lesions, appears from the observations published in the reports on inoculation for the Cattle Plague in Russia.

"17. With the cell formation in the follicles, as in the natural Rinderpest, there is a similar cellular growth in the mesenteric glands.

"18. The nodules which appear on the skin owe their origin to the modified development of epidermic cells on small localized spots, from which the deeper sooner or later become detached, and result in the dispersion of the nodules.

"19. The most superficial layer of the skin wherever it is covered by each nodule, sometimes suffers molecular change.

"20. In the lateral ventricles of the brain, and particularly under the arachnoid over the cerebrum, exudation is met with."

The loosening and degeneration of cells in mucous and other glands, the exuberant growth of cells which are apt to be mistaken for pus globules, and the molecular disintegrations resulting so speedily in destruction of portions of the mucous membrane and of the skin, as well as in detachment and destruction of the epidermis and epithelium, are marked changes revealed by microscopic examination of the tissues in cases of Plague. I have not altogether confirmed Dr. Braucll's observations on the general and excessive formation of epithelial cells, as the earliest phenomena consist in the desquamation of the surface epithelium, displacement and lastly removal of the cells from the inner surface of the follicles of the stomach and intestine.

ON THE CHANGES WHICH THE BLOOD, THE MILK, AND THE URINE UNDERGO IN RINDERPEST.

My brother, Dr. Arthur Gamgee, has been engaged in a careful inquiry into the chemical and other changes which occur in the fluids of the body, and has supplied me with the following information:—

I.—*The Blood.*

The blood is usually of a darker colour than healthy blood. It coagulates with great slowness, but ultimately with great firmness. After standing for a long time only a very small quantity of serum separates.

The density does not appear to vary markedly or uniformly from that of healthy animals. As a rule, it appears to be somewhat higher. The spectrum of the blood in Rinderpest is quite normal, exhibiting the absorption bands of scarlet cruorine. I have never observed the red corpuscles to be crinated or serrated. The numerical proportion of the white to the red corpuscles is, as Dr. Smart has observed, greater than in healthy blood.

In order to ascertain correctly the principal changes which the blood undergoes, the following observations have been made:—

1. The blood of a healthy calf was subjected to analysis. This calf was inoculated with the tears of a cow affected with Rinderpest, and the disease thus induced. The animal was then again bled, and the blood analysed. The animal having re-

covered from the attack, and health being completely restored, a third analysis was performed.

2. A cow suffering from a marked although mild attack of Rinderpest was bled and the blood analysed. The cow having fortunately recovered, a second analysis of the blood was made.

3. A calf apparently dying of Rinderpest was bled and the blood analysed. The animal recovered from the disease, and a second analysis of its blood was made.

4. A calf affected with Rinderpest was bled a few minutes before death. The blood was analysed.

These researches were undertaken at a time when I was greatly engaged with other work, and I was therefore obliged, in my analyses, to limit myself to the estimation of the constituents of greatest importance, inasmuch as their amount in health and their variation in disease has been most accurately studied. Besides ascertaining the density of the defibrinated blood, I determined the amount of water, solids, solids of the serum, fibrin, and corpuscles. The plan of analysis which I followed was essentially that used by Becquerel and Rodier in their very numerous observations on the changes which the blood of man undergoes in disease, and by Andral, Gavarret, and Delafond in their extensive researches on the blood of the different domestic animals. In this method the amount of corpuscles is determined indirectly, being found by subtracting the weight of the fibrin and of the solids of the serum from that of the total solids of the blood.

Analyses 1, 2, *and* 3.—These three analyses are of the blood of the same calf.

Observations.	(1.)	(2.)	(3.)
	Sept. 17th.	Sept. 26th.	Nov. 4th.
	Calf in perfect health. Immediately after collecting blood inoculated with tears of sick cow.	Calf very ill. Pulse 60°, temp. 108°. Does not eat. Great discharge from nose and eyes. Redness of vulva. Diarrhœa.	Calf now in perfect health again. Recovery has been very slow and tedious.
Density of defibrinated blood	1050·1	1048·9	1044·6
Water in 1000 parts of blood	835·48	820·68	847·754
Corpuscles ,, ...	89·69	117·70	74·186
Fibrin ,, ...	4·53	4·85	4·83
Solid matters of serum. ,, ...	70·30	56·77	73·23
Water in 1000 parts of serum	922·39	930·82	921·41
Solids ,, ...	77·61	69·18	78·59

Analyses 4 *and* 5.—These two analyses are of the blood of a cow suffering from Rinderpest. This animal supplied the virus with which all the other animals experimented upon were inoculated.

Observations.	(4.)	(5.)
	Sept. 21st.	Nov. 20th.
	Cow does not eat. Great diarrhœa. Discharge from nostrils and eyes. Redness of vulva. Sec. of milk arrested.	Has recovered completely. Is in capital condition.
Density of defibrinated blood	1058·27	1046·6
Water in 1000 parts of blood	788·67	818·578
Corpuscles ,, ...	138·25	95·340
Fibrin ,, ...	5·62	5·141
Solids of the serum ,, ...	67·46	80·941
Water in 1000 parts of serum	914·46	910·017
Solids ,, ...	85·54	89·983

Analyses 6 *and* 7.—These two analyses are of the blood of the same calf. No. 6 was made of the blood drawn when the animal was supposed to be in a dying condition. No. 7 was made after recovery. The animal was then, and is still, in feeble health.

Observations.	(6)	(7.)
	Oct. 13th.	Nov. 20th.
	Extreme diarrhœa. Animal staggers with weakness.	Although healthy is in poor condition.
Density of defibrinated blood	1052·36	1039·95
Water in 1000 parts of blood	806·79	860·30
Corpuscles ,,	121·164	70·09
Fibrin ,,	7·110	5·75
Solids of the serum ,,	64·93	63.86
Water in 1000 parts of serum	925·51	930·91
Solids ,,	74·49	69·09

Analysis 8.—Unfortunately, through an accident which occurred, this analysis is not so complete as the others. The blood was taken from a calf affected with Rinderpest a few minutes before death. The blood was of a very dark colour.

Density of defibrinated blood	1055·67
Water in 1000 parts of blood	806·61
Solids ,,	193·39
Fibrin ,,	9·90

Note.—On post-mortem examination the following appearances were noticed :—1st. Considerable effusion of serum into the peritoneal cavity. 2nd. Intense congestion of fourth stomach and of small intestines. 3rd. Kidneys and liver congested. 4th. Ecchymosed spots on the mucous membrane of the bladder, which contained rather more than 200 cubic centimetres of urine (density 1029), which contained blood, much albumen, and bile-colouring matter, and 2·23 per cent. of urea.

Conclusions.—I am not blind to the fallacies which must necessarily creep in wherever conclusions are based upon a very limited number of observations, and in pointing out what appear to be the chief results of the analyses performed, I would remark, that as the observations have been limited, their results must be accepted with a certain degree of caution. That these analyses represent the average changes which the blood undergoes in Rinderpest is however in the highest degree probable, and for the following reasons:—

1st. In this series of experiments the composition of the blood was obtained in the same animal when in a state of health and when diseased, so that, instead of having to compare the results of our analyses of diseased blood with standard analyses representing the average composition of ox-blood, we have in three cases been able to compare them with the analysis of the blood of the animal itself when restored to health, thus obviating fallacies which creep in when the results of analysis of the blood of animals of different ages, sexes, and temperaments, are compared.

3rd. The chief alterations in the blood have been noticed in every case. The variation in the amount of the constituents is much greater than has ever been noticed in analysing the blood of healthy animals. Before stating what these changes appear to be, and in order that they shall be better appreciated, the results of the analyses of the blood of fourteen neat cattle by Andral, Gavarret, and Delafond, may be appropriately given.

Analysis of the blood of fourteen neat cattle yielded —

	Fibrin.	Blood Corpuscles.	Solids of Serum.	Water.
Mean	3·7	99·7	86·3	810·3
Maximum............	4·4	117·1	93·6	824·9
Minimum	3·0	85·1	82·9	799·0

If these results be compared with those which I have obtained by analysing the blood of animals affected with Rinderpest, it will be seen that the alterations which occur in this disease are of a very marked and decided character.

From my analyses it would appear that in Rinderpest—

1st. The amount of serum is remarkably diminished; and, therefore, the total solid matters of the serum in a thousand parts of blood are noticed to be much below the healthy standard. This diminution of the solids of the serum might be due either to the serum being very relatively deficient in solids, or to an absolute diminution in the total quantity of serum. It is the latter condition which I have noticed to exist.

2nd. The amount of fibrine is increased, especially in the severe cases.

3rd. The amount of corpuscles is decidedly increased.

The first of these changes is probably accounted for by abundant intestinal discharges, which probably contain a large amount of albumen.

The second is probably due to the local inflammations which are so common in Rinderpest, whilst the third can only to a certain extent be accounted for. When a diminution of the solid matter of the serum occurs, analysis will necessarily show a *relative* increase in the amount of corpuscles, although their absolute amount in the whole mass of blood may remain stationary. The increase of the corpuscles which I have observed is not, however, to be entirely accounted for in this way. How then? My friend, Dr. Grainger Stewart has suggested to me that possibly the destruction of the corpuscles does not take place as rapidly as it does in health.

2.—*The Milk.*

I have analysed seven specimens of milk of cows affected with Rinderpest. In each case the whole of the milk obtained at the evening milking was procured.

The analytical method employed was that of Haidlen. The results of the analyses are given in the annexed table.

In none of the cases had the disease advanced to a remarkable extent, yet in all the secretion of milk was almost entirely arrested. The changes in the constitution of the milk are very uniform and very marked.

They appear to be the following—

1st. The amount of sugar of milk is remarkably diminished.

2nd. The amount of butter is (except perhaps at the commencement) enormously increased.

3rd. The salts are slightly increased.

4th. The casein appears to be generally increased.

Whether the whole of these conclusions are correct I hope to test by others and more numerous analyses.

RESULTS OF THE ANALYSIS OF THE MILK OF COWS SUFFERING FROM RINDERPEST OBTAINED AT EVENING MILKING, NOV. 17TH.

No. of sample	**No. 1.**	**No. 2.**	**No. 3.**	**No. 4.**	**No. 5.**	Average Cow's Milk.
Total quantity of milk obtained	9 oz.	9½ oz.	5½ oz.	2½ oz.	2½ oz.	
Density..................	1027·8	1024·4	1030·05	1021·8	1026·6	
Water in 1000 parts	903·100	866·166	857·282	813·60	875·311	870·20
Solid matters ,, ...	96·900	138·834	142·718	186·40	124·69	139·80
Casein ,, ...	52·0870	51·030	54·295	34·921	54·880	44·80
Butter ,, ...	27·7180	70·279	63·689	129·314	48·401	31·30
Sugar of milk ,, ...	7·7210	8·463	14·740	12·820	12·345	47·70
Soluble salts ,, ...	5·9755	3·798	4·166	4·795	4·873	6·00
Insoluble salts ,, ...	3·3985	5·264	5·834	4·550	4·191	
Day when animal became affected...	Nov. 17th	Nov. 16th	Nov. 15th	Nov. 16th	Nov. 16th	

3.—*The Urine.*

I have not as yet had the opportunity of making as satisfactory an examination of this secretion as I could have wished. My inability to obtain the total amount of urine passed by diseased animals, during at least twenty-four hours, and my belief in the almost utter worthlessness of mere percentage analyses of urine, fully explain the few observations which I have to make on this secretion, some of which are not however altogether devoid of interest.

The urine in Rinderpest is sometimes of acid and sometimes of alkaline reaction. Its density varies considerably; usually, however, it is high. In my observations it has varied from 1019 to 1035 (in this case the percentage of urea was *very* high).

It very frequently contains small quantities of blood, and sometimes renal epithelium. In two cases in which a slight congestion of the bladder was found (*post-mortem*) to exist, there was a considerable deposit of bladder epithelium.

In every case in which I have examined the urine it has been albuminous. In some cases only the faintest trace of albumen was present; in others the urine was very highly coagulable. My comparatively limited observations appear to show that the cases in which urine has been highly coagulable have been very severe examples of the disease.

The *amount of urea* has varied in different cases, but has not been noticed to be remarkably deficient. When the specific gravity has been high, the amount of urea has been large.

That the amount of urea does not appear to be deficient in urine of even the worst cases of Rinderpest, would appear from the following illustrative cases which I extract from my note-book:—

Case 1st.—Urine removed post-mortem from the bladder of a cow which had died of Rinderpest.

Urine decidedly albuminous.

Density 1025. Urea, 1·95 per cent.

Chlorides appear to be scanty. (Not determined quantitatively.)

Case 2nd.—Urine removed post-mortem from bladder of calf. Extensive intestinal lesions found after death.

Sp. gr. of urine, 1021.

Contains albumen and bile-colouring matter. Urea, 1·71 per cent.

Chlorides deficient.

Case 3rd.—Urine removed post-mortem from bladder of calf which had died of Rinderpest. (For the partial analysis of the blood of this animal, see Blood Analysis 8.)

Sp. gr. of urine, 1029.
Contains large amount of bile-pigments.
Highly albuminous.
Urea, 2·23 per cent.

As an instance of a case in which the amount of urea was very large, I may cite the following:—

Case 4.—Urine of cow slaughtered at about the third or fourth day of the disease. She suffered from great dyspnœa during life, and the most marked pulmonary emphysema was found after death.

Sp. gr. of urine, 1034.
Contains much albumen. No bile-colouring matter.
Urea, 5·47 per cent. On the addition of nitric acid, and without concentrating, a large amount of nitrate of urea separated out.

The *amount of chlorides* was never determined quantitatively. In some cases they were however obviously deficient. In others they appeared to be abundant. Probably the cases in which they were deficient were complicated by extensive inflammation and especially pneumonia.

Bile-colouring matter was present in many of the samples of urine which I examined; the amount being so large often as to give the deepest green colour to the urine. In three out of four cases in which I have examined the urine found in the bladder of cows which had died of Rinderpest, bile-colouring matter was present. Possibly they do not accurately represent the actual frequency of the occurrence of bile in the urine. In one of the cases, by employing the process suggested by Kühne, I separated traces of bile acids. In this case I searched for leucine and tyrosine, but did not discover a trace of these substances.

The Nature of the Cattle Plague.

From all that has been said in the preceding pages, it is evident that the Murrain of the Steppes is not typhus, nor is it the typhoid or enteric fever which we observe in man. Not only is it distinct in its origin, progress, and essential nature from any known contagious disease of the human subject, but it is undoubtedly a specific bovine fever manifesting all its characteristic features in horned cattle alone, though experience has proved that there are circumstances under which the Plague may be communicated to the buffalo, goat, sheep, deer, gazelle, zebu, yak, auroch, ibex, and other wild ruminants. One experiment, performed by myself, proves the communication of the disease to the deer; but it is remarkable that until the recent outbreak of Rinderpest in the gardens of the Paris Acclimatization Society in the Bois de Boulogne, it was not known that the majority of wild ruminants could catch the disease and suffer from it in a virulent form. It never attacks men, horses, dogs, and indeed the great majority of warm-blooded animals; and it is worthy of special remark that the virulent animal poison, which is the active agent in the development and propagation of the malady, originates in the system of the ox, is perpetuated in countries where herds of cattle abound, and is not to be found where bovine animals are wanting. The history of the Cattle Plague, which has been fully dealt with in the second part of this work, clearly indicates that the disease has been always recognised as attacking horned stock almost exclusively, and that it spreads from country to country through the trade in cattle, or the transport of oxen in the rear of armies. The poison does pass through the system of some ruminants besides those of the bovine race, but it appears to be deprived of much of its force until it returns to members of the ox tribe.

The Cattle Plague is not a local disorder; it is not an affection of any special organ or group of organs. It is a systemic disease—a fever in which the mucous membranes and skin are specially implicated. There are important local and characteristic manifestations, usually most marked in the mouth, fourth stomach and intestines, in the organs of generation, and frequently in the respiratory passages. It is, however, something different, and something more than an inflammation of the breathing, or digestive, or generative systems. The cell growth, fatty and molecular disintegrations, desquamation and discharge of the epithelial and epidermic cells, are typical of this disease. In this way it can only be classified amongst general diseases, with fevers of a specific kind, and which originate from specific causes, run a definite course, manifest a singular periodicity in their progress, and have a marked tendency to destroy life.

The pathological process observed from first to last indicates an early development of severe febrile disturbance. All the functions are modified. The temperature of the body first rises, general functional disturbance soon follows, and the blood loses its watery parts and soluble albumen, indicating also a large increase in the proportion of blood-corpuscles and fibrine to serum. The process of assimilation is checked. The large reservoirs in which the food is prepared for true gastric and intestinal digestion become torpid. The rumen, reticulum, and omasum retain a large quantity of solid food, and their movements are stopped. The fourth stomach ceases to secrete gastric juice, its epithelium is thrown off, a morbid cellular deposit clogs the gastric glands, and the proper preparation of aliment for intestinal digestion and absorption can no longer occur. The intestine is the seat of inflammation and extravasation. Its contents indicate the drain of the blood of its soluble albumen and other products; the intestinal epithelium is rapidly ejected, and in some cases many of the glands become clogged with a deposit similar to that which is found in the follicles of the gastric mucous membrane. A free suppuration is nowhere witnessed, but discharges flow from the mucous membranes, and are highly charged with epithelial cells and the specific virus of the disease. The rapidity and completeness of the general functional disturbance is indicated not only by the checked process of assimilation, the nature of the intestinal contents, and the general implication of the mucous membranes, but it is recognised on an examination of the albuminous and dark-coloured urine, the isposition to early putrefaction, fœtor of the secretions, &c. All shows that the Cattle Plague poison speedily induces in he system of a susceptible animal changes which defy the uccessful use of medicine, and which must inevitably result n death. Like most animal poisons, the Rinderpest virus is eproduced with marvellous rapidity in, and discharged abundntly from, the bodies of sick animals. The breath of a sick x inspired by a healthy animal, and the solid products of the isease, seem to be alike capable of inducing the malady; and ntidotes are applied too late when an attempt is made to reach he poison in the animal's system. I know of no antidote to be sed internally. Agents are employed which, when directly ixed with the virus, kill it; and caustic alkalies, mineral cids, chlorine, iodine, carbolic acid, creosote, the alkaline peranganates, and other oxidising or decomposing agents, render t perfectly inert. I have no faith in our ever reaching the irus with effect in the living animal. We must not even expect too much from the system of treating certain symptoms during the progress of the disease, which is frequently confounded by the unskilled with the effectual treatment of the disease itself. A large proportion of animals seized must always die; a certain percentage will always recover, and this depends on the severity of the attack, the constitutional resistance of animals seized, and the consequent extent and rapidity of the morbid changes which occur.

Since the above has been in type an important communication has been made to *The Lancet* by a great authority on fevers, Dr. Charles Murchison, on the points of resemblance between the Cattle Plague and small-pox. Anything which Dr. Murchison writes merits special attention; and it is more from the high opinion I entertain of his general knowledge of pathology, than the weight I attribute to his most recent suggestion, that I am induced to reprint his observations *in extenso*. The Dr. says:—

In *The Lancet* of the 26th of August, 1865, I gave an account of the anatomical lesions I had found in the Cattle Plague, which had then begun to prevail in Britain. Subsequent observation has confirmed the statements made in that communication. The main anatomical characters of the disease are catarrhal or croupal inflammation of the lining membranes of the digestive canal and of the respiratory passages, and, in fact, of all the mucous membranes; an unusually dark colour of the blood; ecchymoses or hæmorrhages in various parts—such as beneath the skin and into its substance, beneath the mucous and serous membranes of the third and fourth stomachs and bowels, and beneath the endocardium; an aphthous condition of the mouth, nostrils, and vulva; the exhalation of a peculiar offensive odour from the whole body, but especially from the abdomen; and an unusual proneness to decomposition.

In my former communication, it was shown that the dogmatic assertion that Rinderpest was the precise pathological equivalent of human typhoid or enteric fever, was devoid of foundation. So far as I know, this opinion has been confirmed by every subsequent observer who has dissected the diseased cattle for himself, and published the results of his investigations. All agree in stating that the essential lesions of human typhoid fever are absent. A grave pathological error has thus been corrected.

Typhoid fever, however, is not the only human malady to which Cattle Plague has been thought to be intimately related. By different writers Rinderpest has been compared to contagious typhus, scarlet fever, erysipelas, influenza, and dysentery. A careful study of the subject has satisfied me that all these affections are entirely distinct. It is not my present object to enter in detail into the points of distinction between Rinderpest and the several diseases now mentioned. This I have done in a report which I have been requested to prepare for the Royal Commission "On the Relation of the Cattle Plague to Human Diseases." In the meantime, I desire to impress more particularly on the profession that there is one human disease which, as regards its relations to Rinderpest, cannot be dismissed so lightly. If this disease be proved to be the same as Rinderpest, not only will the benefits to pathological science be enormous, but a certain means of preventing the Cattle Plague will be placed within our power. The disease I allude to is small-pox.

The resemblance of Rinderpest to small-pox is no new discovery, although latterly it has been lost sight of. Upwards of 150 years ago, Ramazzini, in his admirable account of the Cattle Plague which pervaded Italy in 1711, enumerated among the symptoms "pustulæ quinta vel sexta die per totum corpus erumpentes, ac tubercula variolarum speciem referentia."* Lancisi likewise, in his description of the same outbreak, observed: "Semper autem phlogoses, pustulæ, et ulcera linguam et fauces summo cum ardore obsidebant."†

The physicians who described the outbreak of Cattle Plague in Britain in the middle of last century constantly refer to the pustular eruption. Dr. Mortimer describes "scabby eruptions in the groins and axillæ which itch much; for a cow will stand still, hold out her leg, and show signs of great pleasure when a man scratches these pustules or scabs for her."‡ Dr. Brocklesby remarks: "Frequently we may observe pustules break out on the fifth or sixth day, all over the neck and fore-parts." § And lastly, in 1758, Dr. Layard writes thus: "Whoever will compare the appearances, progress, and fatality of the small-pox with what is remarked by authors of authority, as Ramazzini, Lancisi, and other observers, relative to the contagious distemper amongst the horned cattle, will not be at a loss one moment to determine whether this disease be an eruptive fever, like unto the small-pox, or not."|| The outbreak of Cattle Plague, here referred to, commenced in England in 1745, and is generally said to have died out at the end of twelve years, or about 1757, and not

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* 'Opera Omnia,' Genevæ, 1716, p. 787.

† 'De Bovilla Peste,' Romæ, 1715, p. 155.

‡ 'Philosophical Transactions,' 1745, vol. xliii., p. 554.

§ 'Essay on the Mortality among the Horned Cattle,' London, 1746, p. 33.

|| 'Philosophical Transactions,' 1758, vol. l., p. 531.

to have reappeared until the summer of 1865. But, in 1769, the disease was again so prevalent and fatal that it was referred to by His Majesty George III., in his speech at the opening of Parliament in January, 1770, as a great national calamity. It is a most remarkable fact, that this last outbreak has been alluded to by most subsequent writers as an undoubted epizootic of variola, but that Layard, who described both this outbreak and the preceding one in the 'Philosophical Transactions,' regarded them as identical, recommended and practised inoculation in both; and, in support of his opinion, quoted the following passage from a letter addressed to him by Vicq d'Azyr, a great French authority on Epizootics: "Il me paraît, comme à vous, que c'est toujours la même maladie qui a regné depuis 1711; et qu'elle a des grands rapports avec l'éruption varioleuse." * It is generally believed that it was the remains of this violent epizootic that Dr. Jenner found in Gloucestershire, which being communicated to the milkers, rendered them insusceptible of small-pox. With these, and many like observations on record, it is surprising that the cutaneous eruption should have been so long overlooked in the present epizootic.

Early in the month of September, I was struck with the occasional presence of circumscribed circular flattened vesicles, some of them as large as a three-penny-piece, on the udders of cows that had died of the Plague, resembling in every respect the vesicles of cow-pox. In one specimen, which Professor Gamgee had the kindness to show me, this resemblance was most striking. Further observation has satisfied me that these large well-developed vesicles are only present in a few cases, but that, in almost every case, and probably in all where death has not occurred within the first three days of the disease, there is a papular or pustular eruption on the skin, closely resembling the eruption of small-pox. This eruption is not confined to any particular part of the integuments, but is most abundant on the back of the neck and shoulders, in the neighbourhood of the mouth, on the udder and scrotum, and on the skin surrounding the anus and the entrance to the vagina. A minute description of this eruption is contained in my 'Official Report.' At present, it will suffice to state that it appears to consist, in the first instance, of minute pimples or elevations, which become softened at their summits into pustules. These speedily dry up, and form a scab, on detaching which the subjacent cutis appears raw or superficially ulcerated. Petechiæ are not unfrequently interspersed through the eruption. This eruption accounts for the spots and stains observed in the tanned hides of cattle that have died of the Plague.

But the cutaneous eruption is not the only character in which Rinderpest resembles small-pox. Its close resemblance, if not still more intimate relation, to human variola, is borne out by the following considerations:—

1. Small-pox is the only acute contagious exanthem in man that assumes a pustular form. The eruption in Rinderpest is also pustular. Any difference

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* 'Philosophical Transactions,' 1780, vol. lxx., p. 543.

between the two eruptions may readily be accounted for by differences in the skin of men and cattle. In both cases, the eruption extends from the skin to the interior of the mouth and nostrils; and, in both, the pustules are often interspersed with petechiæ. Moreover, in certain cases of Rinderpest, the eruption on the udder assumes the form of large flattened vesicles, indistinguishable from those of ordinary cow-pox.

2. The other prominent symptoms of Rinderpest are also those of small-pox —viz., pyrexia, lumbar pain, running from the nostrils, alvine flux, albuminuria and hæmaturia, and the "typhoid state."

3. The anatomical lesions of the two diseases are identical—viz., inflammation of the mucous membranes of the air-passages and digestive canal, dark-coloured blood, ecchymoses, and a pustular eruption with petechiæ on the skin. This will be apparent on comparing the post-mortem appearances of human variola as detailed by Dr. Copland * with those of Rinderpest described by me in *The Lancet* of August 26th.

4. In both diseases, a peculiar offensive odour is exhaled from the body both before and after death.

5. In both, the duration of the pyrexial stage is about seven or eight days.

6. The two diseases resemble one another in their extreme contagiousness, and in the facility with which the poison is transmitted by fomites.

7. Both diseases can be propagated by inoculation. This can be said with certainty of no other human malady than small-pox.

8. In both diseases there is a period of incubation, which is shorter when the poison has been introduced by inoculation than when it has been received by infection.

9. Vaccinated persons are constantly exposed to small-pox poison with impunity; and, with regard to Rinderpest, there are numerous instances in which individual cattle, or entire herds, appear to have led charmed lives in the midst of surrounding pestilence. This last fact has never been explained; but the immunity of the cattle in question would be readily accounted for on the supposition that they had previously suffered from ordinary cow-pox.

10. It is a mistake to imagine that variolæ vaccinæ is of necessity a mild disease. Under ordinary circumstances it undoubtedly is so. But there are many epizootics of cow-pox on record † where the disease was of a malignant character, and destroyed the cattle almost as extensively as small-pox did the human race.

11. It has been repeatedly stated of late years that ordinary cow-pox had become so rare that it was difficult to obtain lymph direct from the cow for the purpose of human vaccination. As a natural consequence, the majority of

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* Copland's 'Dictionary of Practical Medicine,' vol. iii., p. 821.

† See, for examples, 'Report of the Section of the Provincial Medical and Surgical Association appointed to inquire into the present state of Vaccination,' read at Liverpool, July 25th, 1839.

the cattle in these kingdoms are unprotected from the invasion of the disease in a more severe form.

12. Although it may be objected to the view that Rinderpest is simply small-pox in the ox, that there is no proof that the diseased animals have communicated small-pox to the human subject, and that, in fact, human small-pox is far less prevalent in Britain than it was a few years ago when there was no Rinderpest, yet it is well known that there is often a difficulty in transmitting small-pox from one species of animal to another, and that when transmitted the disease is modified, although essentially the same. The Rinderpest itself, notwithstanding the assertions to the contrary made when it first appeared among us, is transmissible to sheep, goats, and deer; yet there is more difficulty in communicating it to these animals than from cow to cow. The difficulty ought to be still greater in communicating it to the human species than to animals so closely allied to cattle as sheep, &c. Evidence, however, of the transmission of Rinderpest to the human subject is not altogether wanting. Through the kindness of Dr. Quain, I had recently an opportunity of seeing a man who had accidentally inoculated the back of his hand about ten days before with matter from the hide of a cow which had died of Rinderpest. The result was a large vesicle surrounded by a red areola, indistinguishable from a vaccine pock on the ninth day. A surgeon in the country, who had seen the man and sent him up to town, had no hesitation in pronouncing the disease to be cow-pox; and I understand that this opinion has since been confirmed by no less an authority than Mr. Ceely of Aylesbury. Moreover, the general as well as the local symptoms in this man were those of cow-pox. For a few days he suffered from considerable fever, headache, and pain in the back. He had previously been vaccinated, but the protective power of the former vaccination had probably become exhausted. Although this is the only instance of the sort that has fallen under my notice, I have reason to believe that it is not a solitary one. It is to be borne in mind, moreover, that most of the inhabitants of this country are protected from small-pox by vaccination during infancy, and thus possibly may also be protected from Rinderpest.]

These considerations may not be sufficient to establish absolutely the pathological identity of Rinderpest and variola, but they unquestionably point to a very close analogy between them. The object of this communication, however, is not to insist that the two diseases are pathological equivalents, but to enlist the assistance of the medical profession in clearing up the matter. The mode of procedure is obvious and sufficiently simple. It is to produce cow-pox in cattle by inoculating them on the one hand with vaccine lymph, and on the other with the matter of human variola, and afterwards to ascertain if they be proof against the prevalent Plague, or if the course of the Rinderpest be thereby modified. If the results of these experiments turn out as I think there is reason to anticipate, the vexed question of the pathological nature of Rinderpest will be finally settled, and mankind will be furnished with a certain remedy for arresting its ravages.

Recent inquiries, confirming much of the admirable report of Dr. Brauell of Dorpat, a summary of which is given in the preceding pages, prove to demonstration that Rinderpest is not variola. The inflammation of the mucous membranes of the body is not catarrhal nor croupal. The dark colour of blood is common to many diseases, and so are the ecchymoses and hæmorrhages. The eruption of the mouth, nostrils, and vulva is not aphthous, and the cutaneous lesions are specific, distinct, and not variolous.

The facts as they at present stand are not in favour of Dr. Murchison's last theory, and I shall state my reasons for so thinking in specific answers to his separate considerations.

1. The eruption of Rinderpest is not vesicular. The difference in the true variolous eruptions of men and cattle is so slight, that we need not attempt to ascribe the wide differences between the eruption of Rinderpest and human small-pox to any fundamental difference in the skin which does not in reality exist. The yellow epidermic incrustations about the neck and withers, bear no analogy to variola. I have seen the eruption in the Cattle Plague partly umbilicated, and very similar to that of ordinary cow-pox, but I have seen it where the previous existence of vaccine eruption could not be doubted; and on making a section of the epidermic thickening in the case of Rinderpest its peculiar and distinctive characters could not fail to be recognised.

2. The prominent symptoms of Rinderpest differ from variola in one great and essential particular. The invasion, progress, and results of the disease are not in Rinderpest characterised by the eruption. That is to say, the pyrexia, lumbar pain, typhoid state, &c., bear no such relation to the condition of the skin as that which we observe in small-pox. The epithelium is, it is

true, rapidly softened, disintegrated, and desquamated, but we fail to observe the distinct manifestation of a cutaneous eruption in many mild as also in severe cases. There are exceptions, and some may be accounted for by the coincidence of variola and Rinderpest, as we have a coincidence of Rinderpest and Pleuro-pneumonia or Rinderpest and epizootic aphtha. The eruption often heals as the disease becomes aggravated, and there is no relation between the extent and confluence of the eruption and the intensity of the fever, but rather the reverse. The red areola, pustules, and the destruction of skin which leads to pitting in the human subject, are not witnessed in Rinderpest.

3. I cannot admit that the anatomical lesions of the two diseases are identical. The combined lesions of all the mucous membranes, their early and complete denudation of epithelium, have never been described by Dr. Copland or other author as existing in human small-pox.

4. The odour of animals is offensive in a great variety of diseases, such as pyœmia, &c.

5. The fever in Rinderpest precedes all other symptoms, if we are to consider an animal temperature of 105° or 106° Fahr. as indicating a pyrexial stage, and an animal often suffers and is intensely feverish for ten and twelve days after this early manifestation of the fever.

6. The two diseases are said to resemble each other in their extreme contagiousness. So do human small-pox and epizootic aphtha, or Foot-and-Mouth Disease; or human variola and the contagious Lung Disease of cattle.

7. Both diseases can be propagated by inoculation. So can others.

8. As to the period of incubation, we find that in all probability the duration is absolutely the same in the inoculated

and natural Rinderpest. The disparity in the two cases has been really due to more perfect means of ascertaining the incubation in the inoculated animals.

9. I have seen a great deal of Rinderpest, and have not witnessed entire herds leading charmed lives in the midst of surrounding pestilence, except as the result of contagion having been kept from the stock by good fortune, or the exercise of great vigilance. The cases of individual immunity are more rare in Rinderpest than in small-pox, and hitherto quite unexplained. Thousands of cows which must have had variola at some period of their lives, and some which I am confident from examination had had it recently, have been carried off by the Steppe Murrain.

10. Can Dr. Murchison refer to a single and undoubted case of an outbreak of cow-pox presenting any of the leading features of an invasion of Rinderpest? I assert that he cannot.

11. The fact that lymph has not easily been obtained of late years from the cow is probably explained by other circumstances than the supposition that it has not been in existence. Any quantity of instances of communication of cow-pox from horses to cattle, and *vice versâ*, have been witnessed in France in past years, without the production of Rinderpest or anything at all like it. As it is not improbable that the variola vaccinæ is commonly the result of inoculation from the horse, and that this was due to blacksmiths communicating the malady from one to another in times past, we must remember that the forms of grease in horses recognised by Dr. Jenner as variola have been infinitely more rare of late years since the abolition of coaches, and the blacksmith has been extensively superseded in the treatment of Cattle Disease, and hence in opportunities of inoculating cows.

12. I assert that the communication of Rinderpest to man is as yet not proved in any single instance on record. "The large vesicle surrounded by a red areola, indistinguishable from a vaccine pock on the ninth day," has been seen by me on a whole family of people where I have been treating common ringworm of the ox. I have inoculated myself frequently with Rinderpest virus, and not suffered. I was vaccinated when a child, and have been re-vaccinated successfully as a direct test of being still susceptible to the variolous poison.

For obvious reasons I regret that Dr. Murchison should have committed himself to a suggestion which may alarm many, and lead to time being lost by renewed hopes in the success of something short of the only certain and speedy method of extinguishing the disease. Vaccination cannot prevent the Cattle Plague.

I have already undertaken experiments on this subject, and hope soon to complete them. As it is, I do not believe, from the evidence before me, that we have two forms of variolous fever peculiar to the ox tribe: the one malignant, and, in fact, being the most dangerous and destructive epizootic known; and the other, the mild, never widely destructive, and well-known form of vaccine disease.

Dr. Murchison refers to several authors as to the eruption of Rinderpest, and says, "it is surprising that the cutaneous eruption should have been so long overlooked in the present epizootic." Not only have I carefully studied it, but I have made it the subject of special inquiry amongst continental observers; and Professor Gerlach informed me that one of the distinctive features of the Steppe Murrain as observed in Holland, as compared with the English outbreak, was the greater frequency of the eruption in the Netherlands.

There is not one particle of evidence in favour of the view that Rinderpest died out last century by passing into the mild form of ordinary vaccine disease. It is contrary to all our experience of the Russian Plague that it should thus extinguish itself. It killed the last animals in Egypt in 1863 as rapidly as the first. It is as deadly now whenever it attacks an animal as it was last July, and we shall not see it subsiding *per se* into that benignant disease which must be regarded as rather favourable than otherwise to the life of men and animals, and never calculated to annihilate the horned or other stock of any part of the globe.

Dr. Fenwick's statement in *The Times* that the Cattle Plague was associated with the existence of numerous entozoa in the heart and muscles, has caused me to investigate if any grounds existed for considering the malady a parasitic one. The oblong, elipitical, well-defined granular bodies, called Rainey's sacs, and described by Hessling and others, have been found by me in the heart and flesh of perfectly healthy cattle, as they have been seen by Rainey and others in deer, sheep, rats, mice, pigs, and other animals. I failed to find them in a calf about three weeks old which had died of Rinderpest; but I have seen them constantly in older animals that have died of the disease, and in some as young as seven or eight months of age. The bodies are evidently parasitic, and are probably immature forms of some important helminth, the complete history of which has yet to be written. Rinderpest is not, however, a parasitic disease.

TREATMENT OF THE CATTLE PLAGUE.

The Steppe Murrain is essentially one of those diseases for which prevention is better than attempted cure. Urgently enforcing this doctrine has cost me the good opinion of some, who, without duly considering the importance of slaughtering the diseased and infected animals for the protection of many untainted herds, argue that it is not scientific to exterminate the malady by destroying diseased animals. The Cattle Plague can be prevented, and can be extinguished at comparatively small cost and with the greatest certainty in countries such as England. Whatever tentative trials are made as to treatment, this fact must ultimately reveal itself, that it is impossible to deal with outbreaks of Rinderpest by administering drugs. I hold it to be eminently scientific to act on our knowledge of the cause of any disease; and knowing from lengthened experience how easily disseminated and malignant Cattle Plague virus is, it has been my duty to insist on its early and complete destruction, so that it should never reach the systems of herds of animals, in which, when it has once entered, it cannot be counteracted by any known antidote.

The Cattle Plague is not so deadly in its effects as equine glanders, cancer, or well-developed human phthisis; but no known remedy restores an animal once severely attacked, and the administration of medicine is, as a rule, not required to save the small percentage which may recover. Had I recorded the many recoveries which have occurred from first to last in animals treated under my directions, I might have convinced my adversaries that others have probably not done more than myself; but if any one wishes to test the effects of medicines in this disease, let him treat at least 100 animals on any one system and leave another 100 to nature, having proper regard for their comfort and judicious hygienic management.

It is not a little strange how the malady has varied in severity during the present outbreak. Dutch cattle have suffered less than our own, both in Holland and Great Britain;

and, it is doubtless due to this circumstance, that the use of medicines have been applauded, and homœopaths have won laurels in South Holland. If non-professional persons have claimed for themselves the discovery of valuable and sometimes unfailing remedies, it must not be considered that they have afforded proof of greater wisdom than the many veterinarians who have spoken more modestly, but who probably have done as much. Veterinarians have not manifested ignorance on this subject, but have candidly confessed what was possible and what was not; and if full scope had been afforded them to do as they wished, the normal state of the cattle trade would by this time have been restored, and the Plague, though undoubtedly not forgotten, would, so far as Great Britain is concerned, have long been arrested. As, however, the malady has been suffered to spread, veterinarians are called upon to adopt means of cure. With a view, therefore, to indicate what has been suggested and what may be attempted, I shall draw attention to the following points:—

I. Precautions to be observed so as to prevent the spread of disease from a herd under treatment.

II. Hygienic management.

III. Medicinal agents used.

IV. Methods of treatment suggested at various times in this country and abroad.

I. *Precautions to be observed so as to prevent the spread of disease from a herd under treatment.*—Diseased cattle should be placed for treatment in warm and detached buildings where proper ventilation, drainage, and facilities for feeding can be obtained. They should not be left in the fields, and are best kept entirely in the house until perfectly recovered. The sheds should be kept clean, frequently disinfected, and every particle of urine and excrement must be disinfected by means of chlorinated lime. People attending the stock must be kept there for that purpose, and not allowed to rove about and go on other farms, or to fairs and markets. All dogs should be tied up, and every attention paid to cleanliness with other stock and in farm-yards generally. Dirt and negligence are great propagators of the Cattle Plague. It is impossible to be too clean or too careful in avoiding the carriage of tainted objects from an infected to a healthy farm or district.

II. *Hygienic Management.*—This is of far greater importance than any medicine or system of medication hitherto recommended; and I have to direct the attention of my professional brethren to several points of incalculable importance. It is not desirable to have many animals in the same shed when under treatment, and several attendants are essential, so that proper care be taken of the cattle. When a large stock has to be treated the labour and trouble is enormous; it will not do, therefore, to trust to a few attendants, who get tired and faint-hearted over their work, especially when the number of animals recovering is not large. If possible, it is undoubtedly best to have the animals loose; but this can only be secured where isolated cases are under treatment. With forty or fifty beasts sick at one time loose boxes cannot usually be obtained; and it is not desirable to keep many sick animals loose in a yard. As a rule, in winter all the animals should be clothed, lightly but sufficiently, so as to favour cutaneous exhalation. The shed is best kept at a proper and never-varying temperature, not exceeding 58° Fahr. Proper ventilation is indispensable to recovery, and heat must not be purchased at the expense of atmospheric purity. Clothe the animals rather than close the apertures made for the purposes of ventilation. In order to secure purity of the atmosphere every attention should be paid to sweeping away excrement and washing the stalls thoroughly by means of common soda and water. The use of chlorinated lime is not to be advocated where stock is under treatment, as the chlorine gas induces great disturbance, irritation of the respiratory passages, and a troublesome cough. I prefer cleanliness and abundance of fresh air where the cattle are actually diseased, to any system of disinfectants, and the chlorinated lime is best used to disinfect the manure-heap and other objects outside the shed containing the sick. I have suggested the use of perforated boxes containing substances capable of absorbing noxious gases which emanate from living animals, and I believe this means of ensuring purity of atmosphere is preferable to the dispersion of chlorine gas through the air.* The food allowed to animals varies much according to circumstances. During the various stages of acute disease it should be given sparingly. At first linseed-tea or linseed-gruel, well boiled, may serve as a laxative, with or without medicine. Linseed is not to be continued when purging begins, well-boiled oatmeal-gruel should then be substituted for it. The oatmeal-gruel, which is perhaps the best nutritive material to be given from first to last, is made by taking a peck of meal for every three or four animals, and adding some cold water; boiling water is then mixed and stirred with the whole until it acquires a proper consistency to be poured through a towel or sieve. And thus all the coarser and more indigestible portions of the meal are removed. The gruel is boiled for at least ten minutes or a quarter of an hour, and is used warm. About half a gallon of it may be given three or four times daily; and if the cattle drink it voluntarily, so much the better. Badly made oatmeal-gruel irritates the stomach and intestines, and aggravates the diarrhœa. When animals are severely affected they do not eat; but if they have any appetite, well-boiled mashes should be made for them. Of these we can suggest a great variety, such as steeping barley for a time, throwing off the water, adding fresh, and boiling the barley; the whole is then allowed to rest for a while, and bran is mixed with it, as well as a certain quantity of well-boiled turnips. The mash must be moderately salted. The barley may be replaced by brewer's grains, and a moderate quantity of bean or peasemeal —say half a pound of the latter morning and night. One of the best managers of cows I ever knew, and who attended to Dr. Smart's experimental byres in Edinburgh, made, for every sick animal that would eat, a mash of four handfuls of bran, four of brewer's draff, one pound of peasemeal, and two pounds of well-boiled mashed turnips. This was given thrice daily to each animal. Cattle have been fed on milk, soups, &c., but not with the same benefit as with vegetable food which was properly cooked, and not allowed to get sour. Great moderation in diet is essential. The sick cattle must have cold water to drink in small quantities, and at least every two hours. Their mouths are parched, and great benefit is derived from frequent allowances of fresh water, which may be acidulated with a little vinegar, or given alone. All animals under treatment must be kept scrupulously clean, and are benefited by brushing, washing, hand-rubbing, bandaging the legs, &c. As a means of ensuring cleanliness and action of the skin I think it is very probable that the hot-air bath, when at hand, may be of great service, as also the vapour bath or the wet packing used occasionally. As curative means these often fail, but as adjuvants in a proper system of hygienic management they may at times render service.

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* Mr. Barton of Oxford Street, the eminent manufacturer of stable-fittings, has undertaken to work out the plan I have recommended.

III. *Medicinal agents used.*—Under this head it is proper to consider the various methods which may be adopted for using remedies; and if any branch of inquiry merits careful investigation, if only for the benefit of therapeutical science, it is that laborious and difficult one of watching the action of any agent or number of agents under different plans of administration. I do not anticipate that such an inquiry would enable us to deal with the Steppe Murrain in future outbreaks as a curable disease, but it might indicate how best to employ medicines, so as not to aggravate the malady in animals which have a chance of recovery. We might learn how to aid nature without unduly taxing the system; and the inquiry might throw light on the management of human disorders of not so deadly a character, in which some of the difficulties attendant on the effectual use of medicines are not unlike those witnessed in this the most malignant of all known pestilences of modern times.

A. Internal Administration of Medicines.—The plan principally adopted in the treatment of cattle suffering from Steppe Murrain has consisted in giving solutions, mixtures, and powders, either alone or in food. There are various ways, however, which might be resorted to, and perhaps with benefit, and which would effectually set aside some of the uncertain and often injurious administration of draughts. In order to explain myself fully on this subject I shall consider the various methods by which remedies may be given internally.

a. Administration by the mouth.—It is often possible in the early stage of disease, and in favourable cases when appetite returns in the later stages, to give animals tasteless or palatable drugs in food, and this is by far the best plan. The frequent, troublesome, and somewhat dangerous drenching to which sick cattle are subjected, should if possible be dispensed with. I have seen so many animals tormented and injured by the administration of medicines, treacle, gruel, and other liquids, that I venture to make a few remarks on the operation of giving a draught. In the first place, glass bottles are dangerous; and nothing is so useful as a horn of proper shape, or a tin instrument made in the shape of a horn, with its mouth well rounded off. Such twisted tin cups may be had from any tinsmith for about sixpence each. The operator should go up to the right side of the animal, pass his hand over the face into the angle of the mouth on the left side. The head is bent round, not elevated, except to a very slight extent; and if the person giving the draught plants his feet well on the ground, with his back against the animal's shoulder, he can steady himself well, and, holding the horn or other instrument charged with the draught in his right hand, he can pour it by degrees into the animal's mouth. It has often pained me to see sick cattle seized by the nose, and, with their heads drawn up and necks stretched out, required to gulp down a quantity of liquid which cannot be conveniently swallowed in such a position. Often have I seen an animal get worse after such treatment, and the passage of medicine into the windpipe and lungs was not unfrequently the cause of aggravated symptoms. One great objection to the administration of draughts when an animal is suffering from the Cattle Plague is, that they accumulate in the rumen, do not reach the true stomach until the diarrhœa inseparable from the disease sets in, and then the accumulated drugs exert a most prejudicial influence. It is incredible how long a vast amount of medicine, and very acrid irritating medicine too, may remain unchanged, unabsorbed, and inactive in the paunch of an ox, which is usually full of vegetable food throughout the progress of an attack of the Plague. It would be well to consider if the use of draughts could not be anticipated by the employment of other means of unloading the stomach and intestines. Even then the state of the gastro-intestinal mucous membrane would indicate that the majority of drugs would not be tolerated, dissolved, and absorbed, and it would be well to give a fair trial to other processes now to be referred to.

b. Administration by the rectum.—Injections given carefully with the enema funnel, introduced by my father, and manufactured by Mr. Benjamin Latchford, St. Martin's Lane, London, have the benefit of creating little disturbance, and the power of solution and absorption of remedies is probably as great, if not greater, in the rectum during this disease as in the stomach and small intestine. Simple warm-water injections, cathartic, stimulating, sedative, and even nutritive enemata, deserve a fair trial, and as much good may be anticipated from them as from the administration of draughts.

c. Subcutaneous injections.—Various medicinal agents have been effectually introduced into the system by being injected into the open tissue beneath the skin. This plan can be adopted if such remedies as tincture of aconite, solutions of belladonna, of various alkaloids, and other agents which do not irritate and inflame the tissue, are used.

d. Injection into veins.—The principal object in view in resorting to this operation would be to try the effect of injecting about a pint or a quart of water at 100° Fahr. after abstracting a similar quantity of blood from one of the jugular veins. The operation should be tried in the early stage of the disease, and the result usually observed is purgation, action of the kidneys, and free exhalation from the skin. The system might thus be prepared for any further course of treatment. The operation is simple, and unattended with bad results.

B. External Applications.—The method of applying heat, cold rubefacients and blisters to the surface of the skin, is too well known to deserve any lengthened description. Dashing cold water over the body, and then using towels and wisps of hay to dry and warm the animal, has been often recommended. The vapour bath, by covering the animal, head excepted, with woollen rugs fixed out by sticks, &c., and then heating the air between the rugs and the skin by a spirit or gas lamp, has been suggested. If mustard poultices are used, they should be large, warm, and applied with a rug to the body, so as to be kept on for three or four hours. Rugs dipped in boiling water, wrung out thoroughly, and applied to the abdomen, have been resorted to. I need not refer to the barbarous practice of using the actual cautery for this disease.

C. Internal Remedies.—A close observation of the treatment adopted by empirics has led me to the conclusion that no remedy, or class of remedies, can be regarded as absolutely efficacious in any real case of Rinderpest. Some animals recover despite the mode of treatment, but the majority die. I shall here notice some of the principal remedial agents used by myself and others under various heads.

a. Purgatives.—Most veterinarians consider that the overdistended stomachs and the marked constipation should be relieved. From the fact that the omasum is loaded with dry food, even in the later stages of cases attended by great diarrhœa, it is believed by some that smart and early purging is desirable. Full quantities of Epsom salts, linseed oil, and even croton oil, have been given, and a very common result of drastic cathartic doses is to induce an early and very fatal diarrhœa. There are more advocates for mild laxatives; such as treacle, small and repeated doses of sulphate of soda, sulphur, and oil. I have treated many cases successfully without attempting to relax the bowels, and have certainly had as much success then as when either mild or active purgatives have been prescribed. A purgative which may be used advantageously is the following:

Sulphate of Magnesia	12 oz.
Sulphur	4 oz.
Spirits of Nitric Ether	1 oz.
Nitre	½ oz.
Water	1 quart.

As this is not apt to induce much purgation, a bottle of linseed oil may be given after it. Oil of turpentine to the extent of two or four ounces has been given with a quart bottle of linseed oil, and with good effect when no other purgative has been administered.

b. Enemata.—I think that injections have been too much overlooked in the treatment of this disease. They may be given at first to move the bowels, and various forms of medicated or nutritive injections might prove of service. When the diarrhœa comes on, and there is some tenesmus, an injection may be given of one pint of starch emulsion containing one ounce of laudanum, to be repeated if necessary. It is desirable to guard against irritation of the rectum as a result of frequent enemata.

c. Diuretics.—Nitre has been extensively used during the present outbreak, and in considerable doses, with a view to aid in the elimination of the virus. It is apt to weaken, and must be prescribed in moderation. It has no specific action of value. Oil of turpentine, which is a stimulant as well as diuretic, has been strongly recommended by some in ounce and two ounce doses.

d. Diaphoretics.—Warm clothing, the application of heat to the skin by means of heating the air confined with woollen covers arranged round the animal, and the internal use of liquor ammoniac acetatis, oil of turpentine, and other agents calculated to excite perspiration, have been most strongly advocated. I undoubtedly prefer to excite the action of the skin by raising the temperature of the air rather than by the employment of internal remedics, which often act feebly and very imperfectly on the lower animals.

e. Stimulants have had their strong advocates. I have given whisky, brandy, spirits of wine, in two ounce doses every two or three hours, and some animals have recovered whilst others have died. Carbonate of ammonia in half ounce doses has been largely employed, and seems to agree as well as anything with the sick animals. Strong ale, porter, port wine, and other more or less active beverages containing alcohol have been principally used when animals have been convalescent.

f. Sedatives.—I have not resorted to sedatives to any great extent in this malady. Tincture of aconite in 30 drop doses has been administered at frequent intervals. Extract of belladonna, and considerable doses of opium have been chosen from amongst narcotic remedies, as affording the best chance of regulating at different times the condition of the bowels.

g. Neutral Salts.—Nitrate of potash, chlorate of potash, and acetate of ammonia have been freely administered, and in some cases with apparently good effect. These agents are almost exclusively relied on in certain febrile disorders from their action on the blood and the favourable effects they induce in activating the secretion of the skin, kidneys, and mucous membranes generally. They are administered singly, or combined, in moderate and repeated doses with or without carbonate of ammonia, and dissolved in a considerable quantity of water.

h. Mineral and Vegetable Tonics are used with benefit in the convalescent state, and if not given in large doses so as to induce derangement of the stomach and bowels, they accelerate the return to health in a very decided manner. Vegetable tonics, such as cinchona bark in decoction, or infusion of gentian, are given about an hour before feeding time, and serve to stimulate the appetite. Of all the mineral tonics sulphate of iron is the best, and should be given in drachm doses in food. Preparations of iron have been supposed to act powerfully as prophylactics, and for this purpose I recommended them when I first recognised the existence of the disease in the country.

i. Antiseptics.—On the first recognition of the Cattle Plague I used Condy's fluid—the red solution of permanganate of potash—in water alone, or in water slightly acidulated with sulphuric acid. About two ounces of the fluid were given every two hours. The effect obtained was as a rule diminished fœtor of the excrement. A similar effect is obtained by the internal administration of small doses of carbolic acid or sesquichloride of iron. Chlorine water admits of being used in moderation in this way.

k. Mineral acids have claimed a great share of attention, and I have been in the habit of using them freely. Hydrochloric acid largely diluted has lately been vaunted as a specific. Sulphuric acid has been more frequently used. Nitromuriatic acid is serviceable in the convalescent stage.

IV. *Methods of Treatment suggested at various times in this country and abroad.*—Many have loudly denounced the advocates of the stamping-out system, and declared that "every disease must be curable." They have gone further, and suggested remedies. I have received a large number of letters from cure-discoverers and others who believed themselves capable of suggesting specifics if I would only send them a *résumé* of the symptoms and nature of the disease. The policy of recording a list of vaunted remedies may be doubted by many, but it may deter some from venturing to suggest what has been used before; and I might almost publish a list of all the articles of the Materia Medica as having been at one time or other employed in cases of Rinderpest. Those who denounce the pole-axe must not forget that in this country experiments as to treatment have been numerous and more in favour than slaughtering sick and infected animals. Sanatorium after sanatorium has been established and subsequently closed or disused from the failure of all remedies. The favourite British system of dealing with the Plague—in opposition to our most earnest recommendations—may be learned by reference to the following recipes. It may be well to classify them under two heads—Preventive, and Curative Treatment.

A. Preventive Treatment.—A somewhat rational plan recommended from the commencement was the daily administration of tonics, in addition to proper feeding, ventilation, and use of disinfectants. Iron has proved so useful in my own practice during outbreaks of contagious diseases, that in a circular entitled 'Advice to Owners of Cattle,' dated the 3rd of August, I said:—"The administration of tonics in moderation, and especially preparations of iron, may be recommended for all cattle that have been accidentally subjected to the contact of infected animals. All should be done to support the animal's strength, that it may withstand the disorder." Shortly afterwards the British Consul at Warsaw brought to the notice of the British Government in the month of August a remedy for the Rinderpest adopted with much success in Poland in 1857—"the putting of old iron into the troughs from which the cattle drink, so as to produce a highly chalybeate water. The efficacy of this mode of treatment is said to have been discovered by the almost entire immunity from the disease in 1857 of the cattle on a farm where there was a chalybeate spring." An observer recommended in *The Scotsman* of the 18th of August a plentiful supply of bruised oak bark as a great preserver, and fresh powdered carbonate of ammonia dissolved in about the proportion of a teaspoonful to a quart of the water supplied to the cattle, to keep their blood pure and in a state to resist infection. Sulphurous acid and its salts have been strongly advocated, and attention was drawn to Dr. Polli's experiments in man as suggesting the use of these salts for the lower animals, on the 26th of August, by Dr. Taylor, of Nottingham, in the columns of *The Times*. Since then Dr. Druitt, Dr. Smart, Dr. Wilkinson of Sydenham, and others, have recommended daily doses of hyposulphite of soda to healthy cattle in infected districts. On the 26th of September "A Land Agent" suggested the use of vinegar. Two calves were placed amongst a number of diseased cows, and had a wine-glassful of vinegar in a pint of water twice a day; they also had their eyes and nostrils sponged with the same mixture, with complete success. Tar-water made of the best Barbadoes tar and capsicum was also suggested. Hot tar was to be painted on the cribs and mangers, and a little tar was to be smeared on each nostril and upon every foot and between each hoof. Colonel Talbot, writing to *The Times* on the 29th of August, said—"I keep 100 cows within six miles of London, which are fed, like most dairy-cows in the neighbourhood, on cut grass, grains, mangold-wurtzel leaves, and flour. They are never turned out into the fields. On hearing, three weeks ago, that the Plague was raging in my (the N.W.) district, I determined to give each cow daily half a pint of prepared charcoal mixed with her grains and flour, and one ounce of nitre (dissolved in cold water) in half a pint of water every other morning. I have freely used Burnett's disinfecting fluid, dashing it with a wisp of hay against the boards upon which the cows breathe, and along the alleys and openings into the drains. I limewash my sheds every month, and paint the cows' noses with Stockholm tar every morning; I attend to the ventilation, which is as free as I can make it. I have not yet done it, but I intend to fumigate the sheds by burning a little tar on red-hot bricks in them every day. Hitherto, I am thankful to say that the Plague has not visited me. I do not mean to say that these means are a preventive, and I am very far from being presumptuous enough to say that my turn is not at hand." It may be noted that shortly afterwards Colonel Talbot's cows suffered severely from the Plague. Homœopaths early entered the field with preventive medicines, and in fact spoke of the virtues of belladonna and arsenicum on the first night that a meeting was called together to discuss the Cattle Plague in England. On the 7th of August a correspondent of *The Star*, signing himself "S. W.," suggested belladonna to be given to cattle in health two or three times in the twenty-four hours, in all cases where the disease was prevalent or suspected. It is well known how the use of arsenicum has been lauded, and that it still continues to be administered to the profit of homœopathic chemists, but certainly not to the benefit of the British farmer.

B. Curative Treatment.—It is difficult to classify the many extraordinary methods of treatment suggested since the 1st of August last for the treatment of Steppe Murrain. Advocates of hot-air and vapour baths have been very positive in their statements; some, like Mr. R. Monteith, insisting on the value of the first, and others asserting their firm belief in the second, especially in combination with other remedies. The vapour bath is an old method of treatment said to originate with the celebrated Thaer, the father of scientific agriculture in Germany, who is reported to have applied it with signal success during the murrain year of 1828. A large copper kettle is sunk in the earth and filled with water. A strong fire is then kindled underneath the kettle, over which perforated boards have been laid. When the water boils, the sick animal is placed on the boards and covered with a woollen cloth, and a linen one above it. The animal is kept there from half to one hour, then rubbed dry, kept warm, and allowed hay and gruel. Great attention was paid to this method of treatment by a Russian farmer, who explained it in a letter to our ambassador at the Court of the Czar, Sir A. Buchanan, which was forwarded in a despatch to Earl Russell, on the 3rd of October, 1865. Mr. Feuling, the gentleman in question, spoke confidently of the value of the vapour bath; and the faith in the remedy increased when Mr. Graham, of Capellic, near Glasgow, detailed recoveries under the following system. Mr. Graham administered

Three table spoonfuls of Sulphur,
Three table spoonfuls of Nitre,
Half a table spoonful of Ginger,
One pound of Treacle,
In warm water.

The animal was to be packed in three heavy horse rugs, well saturated with cold water, and three other rugs were wrapped over them. In a letter to Sir Fitzroy Kelly, Dr. Druitt enters somewhat fully into the kind of remedies which may be found serviceable in the treatment of the Plague, and his observations are condensed in the subjoined note:—

"In any zymotic disease, the first question is, can we stop it? can we put out the fire? Have we any medicines capable of summarily checking the disease, before it comes to the point at which it is naturally spent? *Id votum est.* We wish we had, but have not. Providence will show us the way some day, if we exert ourselves. But at present the only fevers which we can *cut short* are the malarious ones: ague, remittent, *febbre perniciosa*, jungle fevers, &c.; against which we have quinine, arsenic, and other tonics. We have not at present any remedies on which we can rely for *cutting short* any true zymotic disease, such as small-pox, chicken-pox, measles, scarlet fever, typhoid, typhus, whooping cough, and all that other dreary catalogue. But if we are to make experiments on the *Rinderpest*, there are two or three glimmers of light to guide us. Supposing that we seek for remedies for the early stage: to cut the disease short, deliberate trials should be made, First, into the various alkaloids, amorphous or crystallized, produced from chinchona bark, of which quinine is the chief. But there are many others, such as chinchonine, chinchonidine, and quinidine, which are got from the bark, which may now or will soon be obtained abundantly in India, and which are cheaper. We have just as much reason, and no more, to expect these substances to cure the Cattle Plague, as the Spanish Pilgrims had, three centuries ago, to expect the bark to cure the Countess of Chinchon's ague. It was a fair experiment, which succeeded. Certainly, large doses of these alkaloids ought to be well tried. If we give six doses, of ten grains each, to a man weighing 160 lbs., we ought to give in the same proportion per weight to a cow. Mr. John Eliot Howard, quinine manufacturer, London, E., should be written to, for the cheaper and amorphous varieties of the chinchona alkaloids. Secondly, there are various combinations of bitters, astringents, and aromatics, with stimulants. When they could get no Peruvian bark on the Continent, during the war with France, combinations of alum, oak bark, gentian, and aromatics were used, with more or less success, for their malarious fevers. Thirdly, there are certain saline matters—such as nitrate of potass and chlorate of potass, antimony, purgatives, &c.,—which have more or less virtue in allaying some feverish symptoms, but which are not to be relied on in any zymotic or malarious disease. Lastly, there are stimulants which may be tried in the commencement of the attack with the hope of enabling the animal to shake off the disease, even as a glass of hot brandy-and-water, Turkish bath, and other excitants, may, as I believe, enable man to shake off the earliest stage of influenza. So far then as remedies are concerned, which tend to *cut the disease short*, experience bids us look for specifics amongst the quinine group. And it is experience only that can teach us: *à priori* reasoning gives a very feeble glimmer. But, confessing that we are unable to deal with the disease in its essence, there is a very great deal we can do in the way of mitigating its local effects; of keeping up the strength; of preventing the patient from being poisoned by the poisonous secretions generated within her own system; of checking exhausting discharges; and of rendering those secretions innocuous to other animals. It must, however, be borne in mind that whilst we speak of the different stages of the disease, and can always separate them in idea, they may be all so crowded together that it may be necessary to begin at the very outset with the treatment adapted for preventing local ravages and intestinal infection. Now the chief local effects produced by the *Rinderpest*, are a softened, congested state of the mucous membrane of the alimentary canal, with copious fetid discharge from the bowels; and the most likely class of remedies are those which will restrain this discharge, and so prevent it from draining the patient, and which shall deprive it of its poisonous qualities, and thus hinder it from doing mischief to the patient, or, if voided, from contaminating other animals. If putrid excretions be poured out in the bowels of any animal, they poison the animal's blood, they cause all fresh food to be tainted, and when voided they are the source of contagion to others. Now then we seek a remedy which shall not be poisonous in itself; which shall have tonic or nutritive virtues; which shall restrain excessive discharges; and which shall have the power of deodorizing and disinfecting the contents of the alimentary canal. Such a remedy is the *tincture of sesquichloride of iron*. *The Mineral Acids,* well diluted—as the nitric, muriatic, and *sulphuric*—do in a lesser degree what the tincture of steel does. Their influence in atonic diarrhœa is marvellous; and we ought to know their results in the *Rinderpest*. Small quantities of opium may be added. *The Trisnitrate of Bismuth* in ounce doses would deodorize the alimentary canal, and soothe it, and restrain diarrhœa. I have published cases, showing how, in threatened ulceration of the bowels, the human alimentary canal may be quieted by adequate doses of this excellent drug. See *Medical Times and Gazette* for 1862, vol. ii., p. 595. *Sulphite of Potass* and other compounds of sulphurous acid have great virtue in checking fermentation, and have been proposed by Polli as remedies in zymotic fevers. The admirable preparations of Mr. Condy, the permanganate of potass, &c. We want experiments with large doses of these. But I suspect they are of more value as preventives than as curatives—to disinfect unwholesome water, to rinse the mouths of animals exposed to contagion, and the like. There is the class of *Creosotes*—medicines, such as carbolic acid, which check fermentation, act as antiseptics and deodorizers, and are capital in certain cases of dyspepsia and diarrhœa. Here then we have half-a-dozen remedies, and the example I have given from practice on man shows the precise method in which good results are to be looked for. I reiterate again the necessity of disinfecting the whole tract of bowels, of restraining discharge, and of rendering the fæcal matter innocuous to the patient and her neighbours—all this, too, as a means of helping the patient to live through her disease till its fury be overpast. Whisky, sweet spirits of nitre, beef-tea, and other nourishment, should be given freely. There are other remedies too, as *yeast* in large quantities, whose *modus operandi* is probably that of an antiseptic, and others. Enough if I can succeed in inducing any one who can do so with safety to make a resolute series of experiments on diseased animals."

Often compelled, and usually against my will, to treat cases of Rinderpest, I began early in August to prescribe the frequent administration of Condy's fluid in water acidulated by sulphuric acid, in addition to chlorate of potash, sesquicarbonate of ammonia, acetate of ammonia, nitre, mild laxatives, and various other remedies, according to the condition of my patients. I preferred as a rule a somewhat stimulating plan of treatment, and the recoveries were not fewer than those claimed by other people. Mr. Josiah Hutton of Sudbury, in company with his brother, cured fourteen out of twenty Dutch bullocks belonging to Mr. Garrett of Cavendish by giving ammonia and tonics. Stimulants were administered as required. All the water used for drinking was medicated with mineral acids, and the beasts themselves frequently washed with water impregnated with ammonia. A medical man, writing to *The Daily Telegraph* suggested as "highly important" the hypodermic injections of certain alkaloids, as quinine, atropine, and others, dissolved in distilled water and injected under the skin of the animal. A veterinary chemist, in a letter published in *The Standard* of the 14th of August, prescribed as follows:—

Chlorate of Potash	1 oz.
Nitrate of Potash	1 oz.
Strong Muriatic Acid	1 dr.
Powdered Opium	1 dr.
Decoction of Linseed	A pint and a half.

Mixed together for one dose.

This gentleman spoke positively as to the value of his remedy, and said, "it cannot fail to alleviate the trouble, if not entirely ward off the disease, if given on the first symptoms and followed up three times a day." "N. N.," writing to *The Daily Telegraph* on the 22nd of August, recommended bisulphite of soda in half-ounce doses thrice a day, and after the first day or two six or eight grains of sulphate of quinine with a drachm of dilute nitric or sulphuric acid mixed with brandy or spirit of wine and water, and adding laudanum if the diarrhœa was troublesome.

An M.D. in *The Times* of the 6th September recommended the following prescription:—

Chlorate of Potash Common Salt Nitre	Of each	1 oz.

Dissolve them in a pint of hot water in which an ounce of dilute hydrochloric acid has been mixed, and administer in a sufficient quantity of their gruel for a dose. Mr. Moffat's prescription published in the columns of *The Field* consists of—

Chlorate of Potash	3 dr.
Tartar Emetic	5 gr.
Carbonate of Iron	15 gr.

Mr. Crotch, M.A., recommended, on the 6th of November, the injection of various antiseptic and parasiticide salts into the circulation of the veins, and the hyposulphite of soda, the permanganate of potash, or the perchlorate of soda, are said to be well adapted to this purpose. Dr. Carr of Blackheath, writing to *The Times* on the 12th of October, spoke of a dozen cows cured "by removing the diseased cattle from the shed and tethering them in a shaded spot in the field, administering warm drinks of gruel or linseed tea, with aromatic seeds (fennel or caraway), an astringent, if diarrhœa be urgent, and blistering the throat. The mouth is frequently washed with strong vinegar and water; and vinegar is also administered to the extent of a pint or more daily." Mr. Wilson of Croydon, on the 26th of October, wrote to *The Times* regarding the curative effects of a pint of fresh yeast in a pint of beer given in two quarts of gruel three times a day. Electricity, the electro voltaic pile, the actual cautery, cod-liver oil balls, bleeding to fainting and giving a bottle of brandy to revive, calomel and fumigation with mercurial vapour, and prescriptions having cayenne pepper for their bases, have all had their advocates. I shall close my observations under the head of "Methods of Treatment," by drawing attention to the homœopathic system, and by appending three of the more elaborate and possibly more valuable systems of treatment published. They are those of Mr. Heatley of Market Drayton; Dr. Smart of Edinburgh; and the Edinburgh Medical Committee appointed to report on the subject.

The homœopaths have received a large measure of support in the country, and considerable sums of money have been spent in fostering and furthering their system of treatment. The results arrived at in Norfolk are referred to in the subjoined letter, bearing the signature "C," which appeared in *The Times* on the 28th of December:—

"Sir,—Such hasty and inaccurate statements are so frequently made about the success of the homœopathic treatment of Cattle Plague, that it seems right the public should be made aware of the results of the treatment in this district. Some two months ago the Earl of Leicester offered a prize of 100 guineas for the discovery of a cure for Cattle Plague. The conditions were—1. That every case treated should be certified as one of real Rinderpest by two veterinary surgeons. 2. That not fewer than 30 beasts should be treated. 3. That not less than 60 per cent. should be cured. Mr. Moore and his son on the part of the homœopaths, Messrs. Wells and Smith as the two certifying veterinary surgeons, and Mr. Forrester on behalf of the Norfolk Cattle Plague Association, made two visits to five farms. On these five farms 42 animals were found in various stages of the disease, some so early as to show but few symptoms, others so far gone as to be hopeless. Much discussion and some difficulty arose as to which should or should not be taken. Eventually 21 were registered for treatment and 21 were rejected. All the parties expressed themselves satisfied with the selection, and the treatment proceeded. The result is easily told: every one of the 42 animals died; those which were treated and those which were rejected alike succumbed. I should say that two of those treated were killed by mistake, but it is beyond a doubt that they would have died in a few hours. After this experience Mr. Moore declined to proceed with the competition for the prize. Undaunted by this failure of their system, the London Homœopathic Association instructed their representative, Lord Bury, to propose to the Norfolk Cattle Plague Association to allow a still further trial, in which there should be no certifying veterinary surgeons and no restrictions of any kind. Again the Norfolk Association generously agreed, and not only became responsible for the outlay of both these very costly experiments, but even awarded the sum of 50*l.* to aid the homœopaths in their expenses. Again the Messrs. Moore and a competent staff of assistants appeared in Norfolk, and during the last three weeks they have treated, or are still treating, 45 animals. The results are not quite complete, and I will therefore content myself with saying that 39 of the 45 are dead, and the remaining six are by no means recovered. Such are the facts, and while the disease is rapidly spreading into almost all the counties of England, it may save the pockets of agriculturists and the funds of cattle assurance associations to know how much, or rather how little, this vaunted system has hitherto effected in Norfolk."

Mr. Heatley gives this as his method of treatment:

Take of spirit of turpentine, 1 ounce; castor oil, 7 ounces. To be given first in one dose, and not repeated.

Take of sesquicarbonate of ammonia, 1 drachm; powdered Peruvian bark, 1 drachm; powdered ginger, 30 grains; peppermint water, 6 ounces. To be given in one dose three times a day.

Take of mutton suet, 1 ounce, boiled in half a pint of new milk, strained, and given in one dose every night.

Take of brandy 4 ounces, given in half a pint of linseed tea every morning.

The doses may be increased or decreased according to circumstances.

Dr. Smart's method of treatment has been described by himself as follows:—

"*General Principles of Treatment.*—These are based upon a knowledge of the pathology of the disease, and indicate the line of treatment to be adopted in dealing with it.

"1. The Animal Temperature is Lowered and Deficient.—This has to be restored and maintained. To do so the affected animal is protected from all direct draughts of air, placed in a house or byre with an equable temperature not under 70 deg. Fahr., and the hide thoroughly cleaned and rubbed down, and a warm covering kept on the animal throughout the progress of the case. 2. The Stomachs are Loaded and Distended with Food.—This condition, by preventing access of medicine and suitable nourishment, presents a very great obstacle to treatment. But it also indicates the line of treatment to be adopted at this stage—namely, to remove the hurtful accumulation as quickly as possible. This must be done by mild purgation, suited to the already irritable condition of the lining membrane of the stomach and bowels. The medicines here indicated are gentle relaxants combined with diuretic action. 3. Extreme Vital Depression is Characteristic of the Disease throughout its entire Progress.—This is conjoined with a very peculiar and rapidly destructive change of some of the internal structures. Stimulants to support the depressed vital powers, and resist, as far as possible, this tendency to destructive dissolution, are thus clearly indicated from the very commencement. And as it is of importance to make the healthy organs subserve the purpose of removing from the blood the morbid materials that may exist in it and in the general system, stimulant treatment should conjoin with it remedies fitted to excite the functional activity of the two great eliminators of this class —namely, the skin and kidneys. Hence stimulant, diaphoretic and diuretic action are here indicated. Regular milking of the diseased cow, in order to prevent the retention in the blood of the elements of the milk, is also, on the same general principles clearly indicated throughout the entire course of the disease. 4. It almost appears an axiom to say that a properly regulated and rational system of nursing is in the treatment of disease in cattle, as in man, of very great importance to the comfort of the sick, and as an aid to their recovery. In the present example, no method of combating the malady can be of any use in which careful nursing does not form the basis of every other effort to restore health. It is not idle to repeat this, because in any system of treatment hitherto made public, the importance of this fact has either been insufficiently recognised or entirely overlooked. Hence arises the necessity of there being kind, skilful, and experienced attendants, and a well-regulated dietary.

"*Remedies.*—These are few, simple, and selected on the principles above stated. My experience of their suitableness is every day more established by fresh examples of their efficacy. There are yet only three kinds of drugs which I found it requisite to employ. 1. Laxative, with diuretic action. This is principally used in the early, but often required at other periods, in the progress of the disease. It is composed of—

Nitrate of Potash	Of each . . .	1 oz.
Powdered Ginger		
Powder of Sublimed Sulphur . . .		2 oz.
Treacle		1 lb.

Water to make a quart, and well mixed.

This quantity is given night and morning, or, if requisite, oftener, until scouring is produced. Afterwards, an occasional bottle will maintain the free movement of the bowels without inducing excessive action. As the vital powers sink rapidly, there should be as little delay as possible in administering stimulants. I have found the following mixture possessing stimulant, diuretic, and diaphoretic properties very efficacious:—

Carbonate of Ammonia		¾ oz.
Sweet Spirit of Nitre	Of each . .	1½ oz.
Spirit of Mindereris		

Cold Water, 9 oz. Mix.

This dose, from the commencement of treatment, is administered thrice a-day during the entire course of the disease. When prostration is great, it is sometimes needful to give it from the commencement, and to combine it with any other medicine that may be given. In such cases, the doses may be reduced one third. When convalescence is fully established, a simple tonic hastens recovery. I find none so good and safe as cinchona bark. The best quality only should be used, and given in doses of one ounce and a half of the powder. This tonic in the early period of convalescence is combined with the stimulant, and at a later period with a quart of good sweet ale, given once daily. It is best administered at night. Two tablespoonfuls of laudanum may be added at any time to any other medicine which the animal is getting, or given in the food when it becomes requisite to control excessive diarrhœa, or obviate straining. With this exception, there are at present no other drugs employed.

"*Diet.*—It should be simple, and, until decided convalescence, well cooked, and given in small and regulated quantity. I use the following:—1. Full mash. It is composed of—

Four handfuls of Bran.
Four handfuls of brewer's Draff.
1 lb. of Peasemeal.
2 lb. of mashed Turnips, well boiled.

Not too thick, and given night and morning. At mid-day a drink of gruel is given, made with 2 lbs. of oatmeal, well boiled in six quarts of water. In addition to these, some raw turnip (2 lbs., for example, of greentops), and 1 lb. of hay, may be allowed in small quantities during the twenty-four hours. To allay thirst, three to four quarts of water, previously boiled and allowed to cool, is given in mouthfuls during the day. This constitutes the full diet of a decided convalescent. Half of this diet is, in most instances, during the acute course of the disease, too much. In all cases the same kind of food and periods of giving it are followed. There are some animals that for a time refuse all food, not excepting gruel. In such cases the gruel is administered by the bottle thrice daily, along with or after the medicine. The animal should get a little mash so soon as it takes it voluntarily. It is often expedient to miss a meal, especially whenever symptoms of an unfavourable indication appear. These are not of unfrequent occurrence during the course of treatment. Grass is given, and the quantity of hay and turnip increased as there is progress towards more perfect recovery.

"*Symptoms of Convalescence.*—The more obvious indications are:—1. Recovery of appetite; 2. Greater animation; 3. Return of breathing and pulse to their normal condition; 4. Increase of milk; 5. Chewing the cud. The seventh, fourteenth, and twenty-first days are critical periods in the progress of the disease.

"*Summary of Treatment.*—1. The animal is at once taken from its ordinary food and separated from the rest. 2. Placed in a well-aired byre or house free from draughts, and the temperature of which is maintained at 70° F. or 75° F. 3. It is to be well rubbed down, and thoroughly cleaned and covered with a good rug. 4. If there be constipation, begin with laxative and continue night and morning, or, if required, oftener until there is free scouring. 5. Let there be no delay in giving the stimulant, and, if needful, combine it with the laxative. 6. Defer giving ale and bark until convalescence appears. 7. To obviate straining or excessive purging, two tablespoonfuls of laudanum night and morning may be added to other medicine. 8. Be careful to avoid overfeeding, as an error in diet may prove fatal. 9. See that the cow is well milked night and morning (even when there is no yield), during the course of the disease. 10. All the droppings should be at once disinfected by solution of chloride of lime, and quickly removed. 11. The affected animals should be frequently and closely observed, and threatening indications treated as they occur."

The Edinburgh Committee on the Cattle Plague having been authorised by the Royal Cattle Plague Commission to make observations and experiments in reference to the prevention and treatment of the disease, considered it desirable, in addition to the experiments on treatment which they proposed to institute themselves, to obtain a record of observations and experiments made by as large a number as possible of qualified veterinary practitioners throughout the country. With this view, they drew up the following Suggestions for Methods of Treatment of various kinds, Prophylactic and Curative, which they were anxious should be tested on an extensive scale:

"The Committee before specifying the various methods of treatment in detail, would premise a few general remarks, which they consider to be applicable to all cases.

"FIRST, *as to General Sanitary Measures, Disinfection, &c.*—The Committee content themselves with referring for full information on these matters to the Supplement of the Report of the Royal Cattle Plague Commission, which is in the hands of all veterinary inspectors.

"SECONDLY, *as to Food.*—The Committee deem it desirable to state it as their opinion that, as a general rule, at all stages of the disease, and whatever treatment is used, food should not be pressed on the affected animal. They believe that too much, even of the softest food, is hurtful, the powers of digestion being so greatly impaired by the disease. During the earlier stages they believe that the safest articles of diet are oatmeal gruel, barleymeal gruel, with linseed tea, hay tea, or bran tea, and that little if any addition to these is needed. During convalescence it is also very necessary that the food should be both sparing and of easy digestion. The same diet as during the earlier stages may be continued, with the addition of mashes of well-boiled turnips or carrots, but in moderate quantity. When rumination commences to be re-established, a handful of sound hay, damped with salt and water, may then be given in addition.

"THIRDLY, *as to the Maintenance of the Heat of the Animal.*—The tendency to chill of the surface is a marked feature of the disease, and it is very essential that the animal should be guarded against cold. The byre should be kept heated up to a temperature of 65 degrees. The animal should be thoroughly rubbed down from time to time, and be kept covered with an ample clean rug fastened on with a roller, or band of any kind.

"FOURTHLY, *as to the State of the Bowels.*—In the early stages they are apt to be *constipated.* To remove this condition mild laxatives may be required, but strong purgatives of all kinds are both unnecessary and unsafe. The best laxatives are either raw linseed-oil, in the dose of a chopin-bottleful (an English quart), or from two to three ounces of flowers of sulphur mixed up with two pounds by weight of treacle and two chopin-bottlefuls of water. These doses may be repeated cautiously according to circumstances. Sometimes even in the early stages, but more frequently when the disease has continued for some days, *Diarrhœa or Scouring* is apt to come on, and to prove irritating and exhausting to the animal. The simplest and best treatment for this symptom is one ounce of laudanum, mixed with a chopin-bottleful of lime-water, repeated twice or even thrice a day if necessary.

"Having thus premised these general recommendations, the Committee proceed to state in detail particular methods of treatment, classified under the heads of

A. DIAPHORETIC AND STIMULANT TREATMENT.
B. ACID TREATMENT.
C. RESTORATIVE TREATMENT WITHOUT DRUGS.
D. PROPHYLACTIC TREATMENT.

"A. *Diaphoretic and Stimulant.*—The Committee are anxious to give a full trial to the method of exciting sweating by means of the *Vapour Bath.* The method of using this agent is as follows:—The animal is to be placed in a stall enclosed on all sides, the height of the enclosure being a few inches more than that of the animal. Over the top of the box or enclosure thus formed is thrown a tarpaulin which should cover it completely, with the exception that an opening is left in it sufficient for the animal's head to pass through. There is then to be placed on the floor of the enclosure, under the animal, a tub containing boiling water to the depth of half a foot. A continuous evolution of steam is to be maintained for half an hour by means of red-hot bricks thrown into the tub one after another. Under the use of this steam bath, if properly managed, the animal may be expected to become warm and to perspire profusely. After each vapour bath the animal should be washed with tepid water containing M'Dougall's disinfecting soap, taking care to dry it well after the washing. It should then be covered with an ample rug, kept, as already stated, closely applied to its body by means of a roller, or band of any kind. The bath may be repeated either on the same day or following days, according to circumstances. During and after the bath the animal should be allowed a draught of cold water, which helps to promote perspiration. The objects chiefly aimed at by the use of the vapour bath are to promote the circulation at the surface, to relieve the congestion of the mucous membranes, and to eliminate the poison from the system. Combined with the vapour bath may be used various other remedies not incompatible with it, but calculated to aid its action.

"Several of these remedies the Committee now proceed to mention; it being, however, understood that only one of them is to be used along with the bath in each case where the experiment is made; they are not to be used together in the same case. 1. Oil of Turpentine.—This may be admininistered in doses of four tablespoonfuls, well shaken up with a chopin-bottleful of gruel, and may be given twice a day. This remedy may be expected to act beneficially by its powers of stimulating and of exciting perspiration. It may probably also, in most cases where it is used, supersede the necessity for giving any laxative medicine. 2. Infusion of Coffee.—The method of preparing this remedy is by infusing two ounces of ground roasted coffee for a quarter of an hour in a chopin-bottleful of boiling water. It must, of course, be allowed to cool somewhat before being administered, and may be given in the above quantity every six hours. In addition to its stimulant and nutritive qualities the coffee may act beneficially in consequence of the empyreumatic oil and caseine which it contains. 3. Carbonate of Ammonia.—This medicine, which has been found in many cases to act beneficially as a powerful diffusible stimulant, may be administered three times a day, in doses of half an ounce, either alone or preferably combined with three drachms of nitre dissolved in a chopin-bottleful of gruel.

"B. *Acid Treatment.*—This treatment is suggested in consequence of the alkaline state of the secretions which is found to exist uniformly in the Cattle Plague. 1. Diluted Muriatic Acid is said to have been successful in Holland. It may be given twice a day in doses of three drachms mixed with a chopin-bottleful of gruel. 2. Vinegar.—This may be used in doses of two ounces mixed with a chopin-bottleful of gruel, and may be given four times a day.

"C. *Restorative Treatment without Drugs.*—This consists in carrying out in full the sanitary instructions of the Royal Cattle Plague Commission—in regulating the diet according to the instructions already given—in keeping the animal warm—and in administering two chopin-bottlefuls of good Scotch sweet ale three or four times a day. It is desirable that this system should be carried out in a certain proportion of cases, all drugs being rigidly abstained from.

"D. *Prophylactic Treatment.*—The Committee would further desire to draw attention to the importance of experiments being made as to the efficacy of PROPHYLACTIC (protective) treatment either in preventing the development of the disease or modifying the intensity of the symptoms when the disease becomes developed in animals which have been exposed to the infection. In such cases, of course, all the sanitary measures of the Cattle Plague Commission should be strictly carried out. There may also be given at the earliest possible period *Prophylactic* drugs, of which those most deserving of trial seem to be—1. Sulphite of Soda,* given morning and evening, in doses of one ounce dissolved in a bucketful of water. 2. M'Dougall's Solution, of which a wine-glassful in a bucketful of water may be given twice a day. 3. A mixture of half an ounce of Sulphite of Soda and two tablespoonfuls of M'Dougall's Solution in a bucketful of water may be given twice a day.

"It would have been easy for the Committee to have given a much longer catalogue of Methods of Treatment, but this would only have been embarrassing to practitioners. In the suggestions made, they have sought to combine simplicity, safety, and economy. Whatever the result of the experiments may be, all of them may be easily and cheaply carried out under almost any circumstances. It should be borne in mind, that the results of the experiments, whether *positive or negative*, will be important.

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* The sulphite of soda is a prophylactic, and must not be confounded with sulphate of soda (or Glauber salts), which is a purgative, and not a prophylactic.

"The Committee, in conclusion, beg to invite communications as to the results of treatment from practitioners, and are prepared to give their best consideration to any plans which may be proposed for experiment."

PREVENTION OF THE CATTLE PLAGUE.

There is but one rational and sufficient system whereby the Russian Plague can be kept in check. That is, by preventing direct or indirect contact between animals affected with the disease and those that are sound. All else is valueless; this is clearly established if we consider how and why we are losing the horned stock of Great Britain.

We should have prohibited direct importation from Russia.

We should have established foreign stock-markets and slaughter-houses.

We should not have trusted to the insufficient system of inspection at our ports and markets.

The disease should have been recognised earlier.

We should have killed the diseased and infected animals with the greatest determination from the very first.

The Government should have acted promptly, without trusting to the tardy development of public opinion and the hesitating action of country magistrates, mayors, and others entrusted with authority.

Greater reliance should have been placed in veterinary surgeons, who, knowing the disease and the desperate measures it required, could have saved the lives of thousands of valuable animals.

I did my best on the 29th and 31st of July, 1865, to rouse the Government to a true sense of our position. I then advocated the formation of a national association for the prevention of cattle diseases, of a national insurance fund, and created some astonishment when I said on the 1st of August, that "the present calamity will not fall on a class as in the case of the cotton famine. It must affect the nation throughout its length and breadth. It is too late now to avert such a result, and, with a view to enable us to cope with very extraordinary difficulties, there must be a general and extraordinary co-operation amongst the people." I afterwards advocated the continental system, and said, "I quite agree with the Austrian veterinarians that to cure is in this case to kill, because so long as sick and convalescent animals are kept about, the danger of propagating the malady is enormous. Kill by all means, and if you can compensate, kill all that has been near a contaminated animal."

A public journal, commenting on my first speech on the Steppe Murrain, wrote, "Professor Gamgee detailed the steps which foreign governments had taken, or were taking under the same circumstances. The first—about which there can be no hesitation anywhere—is to isolate the infected herds and pastures. This is the only chance at all of dealing with a plague which is incurable when it once appeared. The next point is to make it to the interest of cattle-keepers, when the pest arrives in their yards, to confess the fact, and to destroy the affected beasts. Continental governments endeavoured to effect this purpose by compensating cattle-owners, but the practice led to great frauds; the graziers made a profit from their stock out of the State funds, and the meat market was worse instead of better. The wiser course, and the one most likely to succeed in this country, is that which the sheep farmers adopted in 1862, when *variola ovina* was so prevalent; clubbing together, they formed a fund to pay for casualties, and thus in three weeks the malady was killed out. We agree with Professor Gamgee that this plan should be pursued at once in the present case. The cow-keepers, for their own sake—it would be wasting breath to ask them to do it on any other ground—must form provisional committees, to take steps for isolating the mischief and paying for its suppression. As for the professor's other suggestion, that the country itself should come forward as it did in the cotton famine, that cannot be seriously supported, at least until the purveyors of filthy meat have given very strong proofs indeed that they are ready to devote some of the past profits to keep themselves from ruin and the public from death in the pot!"

In reply to the above, I said:—"The remark in your leader to-day is calculated to do injury to many who do not deserve any such punishment as the one they are now compelled to bear. It is indeed for the protection of the honest and deserving that every one should come forward now, so as to neutralise the effects of the dealings of those whose conscientious scruples have been of the most flimsy description. Whenever a plague devastates a country, the good are afflicted as seriously as the wicked; and if the Steppe Murrain be not speedily checked in its progress, the honest artisans and the thrifty housewives of Britain must keenly feel the result."

One of my suggestions was at length adopted. On the first week in August, was issued the subjoined circular, announcing the formation of a National Association for the Prevention of Cattle Diseases:

NATIONAL ASSOCIATION FOR THE PREVENTION OF CATTLE DISEASES.

THIS Association has been formed for the purpose of adopting measures with reference to outbreaks of disease amongst our domestic animals, watching and advocating the interests of stock-owners and the country at large in connexion with the manifestation of plagues, and providing relief for the sufferers from such calamities.

With a view to carry out these objects, the Committee appeals with confidence to all owners of cattle, sheep, and other animals to join the Association and co-operate in the undertaking.

Owing to the recent introduction of the Russian Cattle Plague, or Steppe Disease, and the rapid extension of the malady since its first appearance, it is of the utmost importance that all persons interested in the health of stock should aid as follows :—

1. By joining the Society as Members, forwarding their names to the Secretary of the Association without delay, enclosing the Annual Subscription of One Guinea, and any further donation to the extent they may deem fit.
2. By supplying early information as to the manifestation of epizootic disease, and especially of the Russian Cattle Plague, in any district, shed, or farm, with details as to the extent and nature of the outbreak.
3. Distributing circulars, tracts, or pamphlets, issued by this Association for the purpose of disseminating knowledge on the subject of the Cattle Plague or other malady.

The Committee trusts that the Office-bearers and Members of Local Agricultural Associations throughout the country will exert themselves, and appoint local secretaries for the receipt and transmission of subscriptions in aid of the National Association now formed.

Owing to the great importance of arresting all Cattle diseases, that wholesome food be kept at a price within the reach of the poor inhabitants of densely-peopled cities, the Committee feels that it can, with all justice, appeal to the Corporations in various parts of the United Kingdom to contribute in such a way as materially to further the objects of this Association.

From the rapid manner in which the Cattle Plague destroys the cows kept in towns or elsewhere, it is of the greatest moment that farmers, graziers, cow-keepers, and others, whose animals are seized, should communicate as soon as possible with the Society's Secretary. All communications of this description will be regarded as private and confidential, and only to be used for benefit of the persons appealing to the Society for advice and assistance.

GEORGE ARMITAGE, *Secretary.*

Appended to the above circular, was given the following advice to owners of cattle:

48, *Pall Mall, London, S.W., August 3rd,* 1865.

From the rapid spread of the Russian Cattle Plague, the Committee of the National Association for the Prevention of Cattle Diseases have requested me to issue such suggestions to Owners of Stock, as may be of some service under existing circumstances.

It is important at once to state that reports of fresh outbreaks are reaching us daily; that persons acquainted with the Cattle Plague, who have visited the Metropolitan Market, have seen animals purchased after having been in close proximity with those diseased; that infected animals have been freely bought from the dairies or farms where the disease has appeared, and that some unprincipled dealers are attempting to turn this serious calamity to profit by buying what they know to be contaminated, at a low price, to be sold at the value of sound stock to the unwary. The Association has reason to believe that infected animals have thus been purchased in the Metropolitan Districts. and been transported to country markets and fairs, where they have been sold as healthy stock.

THE PURCHASES of Stock must, therefore, be conducted with great care; and whereas all dealings should be effected with persons of undoubted respectability, a special warranty, as to the condition of animals bought, should be obtained. Purchases should be few and far between, and no cattle for feeding or dairy purposes should for the moment be bought in large markets, where foreign or English cattle in a diseased state may be exposed for sale.

SALE OF STOCK.—It is the duty of all persons to protect their neighbours and the country at large from the sale of animals concerning which there may be the slightest suspicion of being affected with the Steppe Murrain. If the officers of this Association are consulted, arrangements may be made for the sale or disposal of cattle. On no account, however, should infected animals be travelled by road, in railway trucks, or steamboats; and it is best to have them slaughtered at home, or be conducted to slaughterhouses in suitable vans.

QUARANTINE.—Newly-bought cattle should be kept separate for a period of not less than ten days, and on no consideration whatever should they be placed amongst stock known to be diseased. As an indication of the great value of this measure, I may be permitted to refer to one of several important cases which have come under my notice. A cow-feeder in Surrey purchased two German or Dutch cows, early in July. He took them home and placed them in quarantine. Both sickened and died; but the standing stock of thirty animals still remain in perfect health.

SUBDIVISION OF STOCK.—It is very desirable to keep stock in small lots, so that, should the Plague attack any single animal, it may be confined to the lot in which that animal may be found. One of the earliest outbreaks of the disease occurred in a shed belonging to a cow-keeper who had his cows separated in three or four places. Out of 140 animals only 24 were infected, and the disease has not spread from the single shed in which it was first introduced.

The Food on which the cows are fed should be carefully selected, properly stored, and given in sufficient but not immoderate quantity, and with great regularity. Sour grains, bad hay, &c., must be carefully avoided.

Management of Stock after the Appearance of the Disease.—Whereas it is of great importance to attend to perfect cleanliness and proper ventilation under any circumstances; it is especially so if the Plague or any such malady enters a stock. The sheds should be flushed with water, and disinfectants most freely used. Scrubbing all wood with hot water and soda, and applying disinfectants, such as chlorinated lime, chloride of zinc, Condy's Fluid, Macdougall's Powder or Solution, are to be specially recommended. Wherever diseased cattle have been purging, all excrement should be removed and the parts thoroughly purified.

Watching the First Symptoms, which consist in sudden suppression of the milk secretion, loss of appetite, shivering, extended head and drooping ears, hot mouth and red eyes, husky cough, discharge from eyes and nose, with costiveness or diarrhœa, must be regarded as of the highest value. At the early stage the malady is not so infectious as at a later period, and by early removal of the sick the remainder may be preserved.

It is best to err on the safe side, and no animal thus removed should be returned to its place unless on the advice of a competent person acquainted with the nature of the disease.

I have always found that convalescent animals are apt to spread disease, from persons erroneously supposing that because an animal is thriving after an attack of illness it can no longer injure its companions.

The Administration of Tonics in moderation, and especially preparations of iron, may be recommended for all cattle that have been accidentally subjected to the contact of infected animals. All should be done to support the animal's strength, that it may withstand the disorder.

The Treatment of sick animals consists in careful nursing, allowing a little meal and water, and using stimulants in moderation and under the guidance of a veterinary surgeon. Hot-water applications to the surface of the belly, and even the use of embrocations, may be advisable.

Persons have recommended the internal use of antiseptics, yeast, carbolic acid, the alkaline permanganates, iodine, and others; but there is no reason to believe that such measures have proved of any substantial service.

By applying to the National Association for the Prevention of Cattle Diseases, special instructions may be had on points which cannot be referred to in a circular such as the present.

John Gamgee,
Veterinary Surgeon to the Association, Principal of the Albert Veterinary College.

In practice the prevention of the Cattle Plague has led to the adoption of various expedients. They are:—

I. Preventing the importation of live stock into any country.
II. Quarantine.
III. Inspection of frontiers, ports, markets, and the country generally.
IV. Slaughtering sick and infected animals.
V. Indemnity.
VI. Insurance—local and general.
VII. Stoppage of fairs and markets.
VIII. The use of disinfectants.
IX. Inoculation.
X. Vaccination.

I. PREVENTING THE IMPORTATION OF LIVE STOCK INTO ANY COUNTRY.

A peremptory order prohibiting the importation of live stock has often saved countries from the Cattle Plague when it has travelled near them and might easily have been communicated. This interference with foreign trade, however, need only be limited, and is rarely required beyond a brief period. In my opinion cattle should not have been imported into this country direct from Russia at any time; and had it been found necessary to open a trade with that country, a system of quarantine such as the Prussians enforce should have been instituted. The protection of Ireland from the Plague evidently depends upon the restrictions placed on importation of stock. This demonstrates how much can be done by preventing intercourse between a healthy and an infected country.

One question should be solved definitively, and that is, If two countries adjoining each other are both infected, should trade be carried on between the two? I say, decidedly not; and cannot understand why the Dutch trade has been sanctioned up to the present time. No cause has been more active, since the early introduction of the disease amongst us, in aggravating the outbreak and favouring the dissemination of the Plague, than the importation of infected stock from Holland. I have traced many outbreaks to newly imported animals. I have even heard of outbreaks resulting from diseased cattle, which were washed ashore after having been thrown overboard on their way to England, and Professor Simonds stated to the Cattle Plague Commissioners, "we have traced several outbreaks in England which were dependent upon the introduction of animals from Holland."

It is contended that our imports of live stock from Holland are too important to be meddled with. Is it not strange, however, that the fact is entirely overlooked that Holland supplies us with only part of the stock embarked at its ports for our shores, and that that country is to a great extent the high road through which the cattle of Central Europe come to us? Why not favour a deviation in the course of trade rather than encourage a means whereby our animals are with all the greater certainty infected and destroyed? The Dutch breed largely to supply our markets, but they also buy; and as no other country has been supplying us with infected herds since the importation of the Revel cargo, we should undoubtedly have either prohibited importation from Holland, or killed all Dutch animals on landing. If the historical notes in the second part of this work are studied, it must be apparent to all that one obvious measure of defence has been neglected. The Belgians and French did not keep their ports open when the disease had reached them, but with vigilance and decision at home protected themselves from further invasion from abroad.

II. Quarantine.

The confinement of men and animals within narrow limits on the frontier or ports of landing of any country has not found favour in England. Quarantine regulations relating to human diseases have so often failed, that many are prejudiced against them. In the case of cattle, however, they have been found sufficient to protect countries from plagues; and the reasons why quarantine is more operative in the case of cattle than human disease, are:—

Firstly. That the animals travel in herds at intervals of greater or less length, but always sufficiently to secure a perfect supervision of the traffic.

Secondly. The collateral means by which cattle diseases can be carried are not so numerous as in the case of human disorders.

Thirdly. It is possible in some cases to maintain without interruption a quarantine system between countries enjoying extensive intercourse from a large cattle traffic.

Fourthly. The epizootics against which quarantine is recommended are purely contagious, with a definite period of incubation, and well-marked signs at their outset. It is, therefore, useful for such maladies as small-pox in sheep and the Cattle Plague. Epidemics which have led to the adoption of quarantines from time to time, have been maladies due probably to more than simple contagion, and dependent on local as well as general causes, or on the heat and drought of peculiar seasons, and so forth.

Continental governments and veterinarians recognise that the Steppe Murrain admits of being kept in check by quarantine, and the Austrians and Prussians have absolutely enforced the strict isolation of suspected stock in their eastern frontiers for a period of twenty-one days. At the Veterinary Congresses of 1863 and 1865, a somewhat general desire, which terminated in a specific recommendation, was expressed for shortening the period of quarantine to ten days. The object of thus curtailing the period of isolation was to abolish an illicit trade—the smuggling of cattle, which has been most damaging to the Austrian empire. The Committee appointed to report on this subject at the last Congress agreed on recommending that quarantine should not extend beyond ten days, but only on the following conditions:—

Firstly. When the organization of quarantine establishments is carried out in accordance with the requirements of trade and the peculiarities of the frontier, special attention being paid to the erection of quarantine stalls, with facilities for procuring an abundance of fodder and water.

Secondly. All animals in quarantine to be watched closely; the inspectors being duly qualified veterinarians.

Thirdly. All animals entering the quarantine sheds to be branded.

Fourthly. All animals to be thoroughly washed and disinfected before leaving the quarantine.

Fifthly. Returns to be obtained of the cattle in eastern districts, and their sanitary state regularly investigated by competent veterinarians.

Sixthly. A poll-tax to be levied to form a fund for the indemnity of owners of stock whenever animals in the frontier districts have to be killed, in order to stamp out the Rinderpest so soon as it appears.

Seventhly. A close inspection of cattle travelling in the interior of the country.

The conditions above detailed indicate that the Committee considered the ten days' quarantine insufficient for sure and safe protection without the adoption of special precautions. The object of the Committee, and indeed of the united members of the Veterinary Congress, was to fix on a uniform system capable of general adoption. Professor Hertwig showed how very differently countries bordering on Russia dealt with the question. The Prussians always have a twenty days' quarantine, except when the disease is near their frontiers, and then importation is strictly prohibited. In Poland fat cattle destined for immediate slaughter have been admitted from Russia after a quarantine of twenty-four hours to three days; but when the animals were destined for store purposes quarantine extended over twenty-one days. Several eminent veterinary professors have expressed themselves very strongly on the insufficiency of a ten days' quarantine; and Professor Jessen, of Dorpat, after proving that the period of incubation of the disease does not extend beyond ten days, stated that the cattle of the steppes might, on entering the quarantine and on leaving, not only after ten but after twenty-one days, appear sound, and yet be suffering from the disease. No man has had greater experience on this subject than Professor Jessen, and, in terms that could not be mistaken, he said at Vienna last August, that, from his observations, "steppe cattle may be so mildly affected with Rinderpest that no veterinarian, however great his experience and ability, could recognize it." He added, quarantine never can, therefore, afford entire and perfect protection.

The numerous distilleries in Austria, affording a ready supply of food for cattle, naturally lead to an extensive importation of beasts for the eastern provinces of the empire. And, indeed, the cheapness of Russian stock must always tempt the Austrians to make these purchases. The twenty-one days' quarantine afforded complete protection to Austria from all the cattle which were subjected to isolation, and from 1850 to 1863 only one case of Rinderpest was reported as connected with a quarantine establishment. The Austrian outbreaks which have been numerous, and led to a loss of animals valued at 30,000,000 florins in fourteen years, have been due to smuggled cattle; and that this smuggling has been carried on most extensively is proved by the fact that during the above period 25,000 animals were set down as imported through the custom-houses of Eastern Galicia, whilst no less than 50,000 head of these cattle had been sold for slaughter in Vienna alone.

The results of my inquiries as to the early and decided elevation of temperature in animals sickening with the Rinderpest tend to show that the ten days' quarantine would be perfectly safe, if proper arrangements were made in quarantine establishments for strict daily thermometric observations. I trust that my professional brethren in Austria, Prussia, Russia, and other countries will contribute information on this branch of the subject, so that some decided conclusions may be arrived at as to the value of this means of recognising the disease.

Any system of quarantine established in an island such as our own, can be most effectually carried out; and, whilst we must admit the force of Jessen's objections, it is evident that for Russian cattle quarantine would be preferable to trusting to that system of inspection which did not prevent the introduction of the disease into this country in May, 1865.

III. INSPECTION OF FRONTIERS, PORTS, MARKETS, AND THE COUNTRY GENERALLY.

No system of Cattle Disease prevention can be carried on without inspectors, and the great point to attend to is, that those intrusted with the arduous and difficult duties of inspection should be properly qualified veterinarians. Not only, however, should inspectors be skilled and fit for the task imposed on them, but they should be asked to do what is possible and of service—not, as is too often the case, that which it is beyond their power to accomplish. The system of inspection at our ports has always proved insufficient to prevent the introduction of contagious diseases from the continent; some different and more effectual plan is, therefore, urgently desired. The Austrians indicate how inspectors may prove of service on the frontier of any country, similarly situated to their own. We must have officers at our ports, able to examine stock, and to superintend their isolation or slaughter, in connection either with a quarantine system or with foreign stock markets and slaughter-houses. I have, however, seen too much of inspection at ports to warrant me in recommending that full reliance should ever be placed in it, to prevent the introduction of foreign diseases. I wish I were in a position to say that one or more skilful veterinarians could afford us protection. Apart, however, from the fact that it is not possible to declare, on the simple inspection of a cargo of cattle, that it is absolutely sound, it is impossible to secure for many ports a staff of men absolutely proof against bribery, and not chargeable with negligence. We must adopt a system of protection from foreign plagues which will work surely and constantly, and not depend for its efficacy on the honesty, industry, and professional skill of any man, or body of men. I make these remarks with all deference to those who now hold the posts of inspectors at our ports.

Inspectors of markets, fairs, farms, town-dairies, &c., are essential in order to note the progress of disease, report on outbreaks, and see to the carrying out of preventive measures. These inspectors are always needed. Had this system of inspection been in force before the Cattle Plague appeared, we should have known more of the disease when it first broke out. The false policy of economising a comparatively small annual sum which should be devoted to a rational system of veterinary inspection throughout the country must therefore be apparent. Continental States recognise the value of having veterinary inspectors in all parts of their dominions, ready for any emergency which may arise. Indeed, it is for the furtherance of such a system that large sums are annually expended by foreign governments for the maintenance of Veterinary Colleges.

Custom-house regulations are necessary when the Russian Plague prevails in a neighbouring country, to prevent the introduction of the raw produce of diseased animals. In the Austrian regulations are the following instructions:—

"As not only the diseased animals themselves are the bearers of the malady, but also their horns, skins, hoofs, fat, and flesh, &c., bear within themselves the infectious stuff of the disease, particular attention is therefore to be directed to these animal productions at their importation from the above countries, and namely:

"(*a*) Skins may only be imported when perfectly dry and hard. Fresh skins are only allowed to pass the frontier after having undergone the process of disinfection by the vapours of sulphurous acid.

"(*b*) Horns and hoofs must be immersed for twelve hours in salt-water (10 lbs. of rock-salt to one pail of water), must be frequently stirred and dried, while the tips of horns must be well washed with salt-water and well dried only.

"(*c*) Melted fat or grease can only be admitted in casks; the melted tallow in abundant wrappings, can only be admitted after these coverings have been destroyed or cleansed on the frontier.

"(*d*) Unmelted tallow and raw meat are to be refused entrance.

"If the malady prevails extensively in the neighbouring foreign states, the authorities may for the time being prohibit the importation of cattle generally, and in fact of all productions coming from the infected places.

"Should the Plague break out in districts close to the frontier, all sorts of sheep, goats, and swine are not to be admitted, and particular attention is to be paid to dogs and fowls which frequently carry about the disease, and it is desirable to check as much as possible their wandering about; this especially applies to dogs. Persons coming from infected places, as also cattle-dealers, butchers, tanners, &c., are to be refused entrance, or must undergo the usual quarantine process, while all intercourse is strictly prohibited with the infected place itself."

IV. SLAUGHTERING SICK AND INFECTED ANIMALS.

Wherever the Steppe Murrain appears it is, as a rule, prudent and wise to kill at once all affected and infected animals; none should be slaughtered but those which there is reason to believe have been infected. This effectual method of stamping out the disease, which has been recommended by myself and other professors of veterinary science, must not be confounded with what is termed "indiscriminate slaughter" by those who adopt an opposite view. By such men reverting to the pole-axe is considered barbarous, unscientific, and unworthy of the time and the country we live in. I take a different view of this question. What does science teach us? In the first place, That the Cattle Plague virus is subtle, deadly in its effects, and capable of rapid production and dissemination. We must not, then, wait to counteract it till it reaches and enters the systems of susceptible animals; but we must annihilate it wherever it can be traced. A lengthened and close experience has led me to this conclusion: that the only sure and certain way to annihilate this virus is to destroy the animals which by their sickness indicate its presence, or by their associations afford certain proof that they are passing through the period of incubation of the Rinderpest. In the second place, science teaches us, that the cause—contagion—having been traced, the most rational, and most scientific plan of preventing the disease is to render its transmission unlikely or impossible. It is not expedient nor economical to adopt any other method of prevention when the Cattle Plague enters a country such as England, except that of extinguishing all centres of infection with promptitude and determination. From every point of view, that which is best is always the most scientific. Abroad it is enacted that no animals suffering from the Cattle Plague shall be submitted to medical treatment. Thus, in Prussia, not only is the treatment of diseased cattle strictly forbidden, but the same order holds good for recommending and publicly advertising remedies.

There are those who argue that slaughtering is only admissible on the first appearance of the disease; and that such a course would have been prudent in August, 1865, but it is not proper now. They consider the disease so widespread that to effectually carry out such a system, the entire stock of the country would have to be destroyed, and they prefer trusting to an impossibility—the eradication of the malady by doing away entirely with the cattle traffic of the country.

I hold that it is best to spend at once four or five hundred thousand pounds, or more if required, in order to kill out the disease, than permit it to increase at its present rate. Every week delayed, increases the loss by upwards of one hundred thousand pounds, and this sum will go on augmenting, until we shall inevitably lose many millions sterling. The Privy Council returns indicate that the number of animals attacked weekly does not yet amount to ten thousand. The area of uninfected country is, therefore, still large. I consider it quite possible to clear out every trace of disease in two months. My advice is to prohibit, under a heavy penalty, all attempts to treat the malady. Adopt either a system of Government indemnity or insurance, and insist on the instant slaughter of all sick and infected animals. Nothing short of the most energetic and determined measures will preserve the remnant of our valuable breeding stock.

As it is, what is the result of not killing the animals? They die to the extent of 90 per cent. or thereby wherever an outbreak occurs. What is the saving of 10 per cent. on the hundred and ten thousand attacked now, to the hundreds of thousands doomed to slower and more painful death hereafter, if the right and only effectual method of eradicating the disease is not at once enforced? Economy, humanity, the very existence of our British breeds of cattle, should impel us to discountenance orthodox and heterodox dispensers of draughts, baths, and disinfectants, and to resort without further delay to the stamping-out system.

V. INDEMNITY.

The bare idea of indemnifying owners of stock was scouted when first hinted at on the nature of the outbreak being recognised. It is now in favour in many quarters, and there are even those who believe that Parliament will vote a sum to compensate persons whose animals have been slaughtered by order of the inspectors before the issue of the consolidated Order of the Privy Council. Lord Winchilsea addressed a letter to *The Times* on the 18th of October, which was written in that nobleman's usual forcible style. He concludes:—"Were some large cotton or other manufactory employing hundreds of workmen suddenly to develope cholera, and were an Order in Council to be issued thereupon, commanding the building to be razed to the ground and the machinery burnt, without indemnity to the owner, I would gladly be informed of the nature and extent of the outcry that would follow; the 'Black Country' would go into permanent rebellion; and yet such a proceeding would neither be more unjust nor more ridiculous than the issuing an order commanding the destruction of infected cattle, on public grounds, without an indemnity to the owner. Let the authorities carry out free trade in its entirety; by which I understand the full and indefeasible right of any one possessing a diseased cow to take it to market and sell it for anything it will fetch; or else, if prudence and precaution oblige them to act otherwise, let them compound with the owner, and come to terms upon which they may become entitled to the beast, and slaughter it in the common interest. Upon such terms, and upon none other, is the public entitled to take cattle. If they do not pay, they steal; and if they steal, they break the Commandments, which exist *de se* and *per se*, and are good against one or a thousand, a pickpocket or Great Britain."

Mr. Algernon Clarke, writing in November, thought that the time was long past when there existed any chance of "stamping out" the Plague, but he called on the country to pay for what it killed, and said, "I make no appeal to national charity for my kine that may fall before the destroying angel, but I claim full repayment for every head of my stock that may be wantonly killed by Government order for the presumed good of the nation." Mr. Howard, of Bedford, an eminent agriculturist and breeder of stock, in an admirable address to the Central Farmers' Club, urged this question of compensation on Government, and "A Warwickshire Farmer," taking up the subject in *The Gardener's Chronicle*, contended "that had the Privy Council when passing the law for wholesale destruction, at the same time announced their determination to give a certain compensation (the higher the better, as being more effectual), the disease would ere this have been almost if not quite extirpated, for then the owner of any diseased beast, finding the Government almost as good purchasers as any private individual, would not have run the risk of incurring the penalty for selling from a herd already infected, and which penalty even merciful magistrates could then have found no plea for evading. Had this course been adopted at first, how much suffering would it not have saved, and how many thousands of beasts spared for the use of the community at large; for it is by no means a farmer's question only, but a thoroughly national one." Mr. Wooler and others well known in the matter of agricultural science, also took up the subject, and their arguments tended to show that I was not wrong in strenuously advocating a system of indemnity, so that we might be enabled more speedily and completely to stamp out the disease.

It appears to me, however, that it would be more in accordance with the feelings of the country if we developed a national insurance system; and this leads me to the sixth subject under the head of preventive measures.

VI. Insurance—Local and General.

The Insurance of live stock against disease was unknown in this country prior to the introduction of foreign maladies. In my Report to the Privy Council on "Cattle Diseases in Relation to the Supply of Meat and Milk," I furnished some startling facts and statistics on the subject of Cattle Insurance, and proved that Companies of all kinds established on the mutual, or on the proprietary system, had failed; the only exception to this rule was furnished by certain small cow clubs, especially in healthy districts of the country, where farm servants insure their cows on the mutual system. Knowing what I did of the value of Cattle Insurance when disease made its appearance, I insisted from the first night that I lectured on the Cattle Plague in London, on the importance of a national system—a compulsory one if possible—but at all events one backed by Government, so as to inspire the confidence of farmers throughout the country, and induce healthy districts to share the loss with the infected ones.

The movement in Norfolk induced farmers in many other parts of the country to form local associations, which, however, as I anticipated, failed to fulfil the purpose for which they were established. Mr. Howard, of Bedford, alluding to this subject in an address to the Central Farmers' Club, said, "Praiseworthy efforts have been made in most counties, by owners of stock banding themselves together to indemnify each other against apprehended losses. It appears, however, from inquiries I have made upon the subject, that with two exceptions only, viz., Banbury and Hertford, these associations have not been formed upon a legal basis: this is an important matter. Mr. Tidd Pratt, an eminent authority upon such matters, informs me that to render any assurance association legal, it must be registered under the Joint Stock Companies' Act of 1862; and unless this is done, proceedings cannot be taken against members for the recovery of the amounts due from them. And what is perhaps of more importance, there is no limit to the liability incurred by individual members. The principles upon which these associations are established are as numerous almost as the counties in which they are in action. If they are to gain a permanent and successful footing, it strikes me they must, like fire insurance offices, be few in number, and embrace all diseases."

A letter appeared in *The Scotsman* of the 7th October, 1865, signed "No Procurator," referring to the legality of the proceedings of local associations, in which it is said that "it would appear that an Act, which has scarcely had time to become generally known, bears directly on this new kind of insurance. It is an old law of George III., remoulded in the Gladstone cast, and dated so recently as 5th July, 1865, 28th and 29th Vict., cap. 96. The best way to explain it will be to quote that part of it relating to the matter in hand; and any person wishing to prosecute his information further will get the whole

Act for sixpence:—'There shall be charged and paid for upon any policy of insurance, whereby any lawful insurance not chargeable with stamp-duty—as life assurance, fire assurance, or sea insurance—shall be made upon any property or interest whatever from loss or damage of any kind . . . . or whereby any sum of money shall be assured or agreed to be paid as for loss or damage arising from or consequent upon the happening of any accident, the following duties (that is to say):—If the premium or consideration for such assurance shall not exceed 2*s.* 6*d.*, one penny; and if the sum shall exceed 2*s.* 6*d.*, and shall not exceed 5*s.*, 3*d.*; and if the sum shall exceed 5*s.*, then for every 5*s.*, and also for any fractional part, 3*d.* And where such assurance as aforesaid shall be made on such terms or conditions that the rates of duty aforesaid cannot be applied to the same or the policy charged therewith, then, and in lieu of the foregoing rates of duty, there shall be charged and paid upon such policy, in respect of the amount insured, the same rate of stamp-duty as is now chargeable by law on a policy of life assurance.' Clause 13 imposes heavy penalties on any evasion of the law."

A proposal was made by "A Practical Farmer," in *The Mark Lane Express* to the effect that Government should share the losses sustained throughout the country with the local associations. He wrote: "The associations shall be responsible, and pay one third of the amount of established claims, and the Government two thirds. I name this proportion as being fair, owing to the expenses attendant upon keeping open these associations. One great advantage attending this organization would be the virtual legalisation of these societies. Of course, if members are only to be compensated through their operations, every member will strive to keep upon correct and prompt terms with them; and these societies, on the other hand, will take care not to prefer claims till all their demands are met satisfactorily. It would wonderfully conduce to the independence of these associations. I am convinced that sooner or later Government must render very considerable help, and the sooner the better, lest these associations should flag and dissolve."

Sir James P. Kay Shuttleworth addressed a letter to *The Times* which appeared on the 5th October, 1865, in which he advocated a national insurance system. A letter coming from such a source should command great attention, I therefore do not hesitate to reproduce it *in extenso*. Sir James said:—

The spread of the Cattle Plague presents a new problem to that system of personal liberty and self-government to which we are attached. Arbitrary governments, possibly with the advice of men of great experience and scientific knowledge, have acted on their conceptions of the origin and mode in which the disorder is propagated; have prohibited importation; prevented all markets and fairs; isolated infected farms from all intercourse of man or beast; slaughtered all cattle that sickened; and paid an indemnity to the owner. In this country the interference of the Government is limited by the maxims and practice of our free constitution. Here we discuss in the public journals all the scientific questions of the origin of the disease; its character; whether it is simply contagious; by what means the contagion spreads, and what are the conditions which promote its diffusion; what animals are susceptible of its attacks: whether the disorder undergoes any, and if so, what modifications in sheep or swine; the utility of inoculation; the establishment of cattle hospitals for its treatment and the best remedial measures. The people will be quite as responsible as the Government, if, in the unrestricted freedom of our discussions, we either allow the time for effectual action in the suppression of the Plague to pass, or impair the vigour of our efforts to limit its diffusion. If the progress of the disease cannot be arrested, measures ought to be adopted to prevent the burthen of a national calamity from being borne by only a part of the people at the cost of their ruin. Those who are familiar with the modes of thought and habits of small farmers in remote districts must be aware of the necessity of simplicity in instructions as to all sanitary and preventive measures. As in a free country the Government mainly relies on the intelligence, activity, and energy of the people voluntarily to adopt and carry into execution whatever measures are necessary for their protection in such emergencies, it seems indispensable that the landlords should intervene on estates divided into small farms—should take care that every tenant is well informed as to all the orders and suggestions of the Privy Council, and on matters on which no instructions have been issued, should lend the aid of whatever information they can obtain. Thus the knowledge of an educated class may be made useful to one which derives little information from reading. The intervention of the landlords will be most influential wherever they offer to their tenants to pay one-third or one-half of the instalments required in a system of mutal insurance. Without such assistance and the exertion of the influence of the proprietor, a large class of the smaller tenants will enter no association. Yet, as a large part of the losses of tenants will have to be deducted from rents, the landlord is almost as much interested as the tenant in the diffusion of the burthen of the loss by a system of insurance. The Privy Council have hitherto issued no suggestions as to the principles on which societies for mutual protection against losses from the Cattle Plague should be founded. These principles do not appear to be self-evident, for such associations are in course of formation on plans so different, that it is clear that many will issue only in disappointment and confusion, while others will fail to attract confidence and support. With the hope of contributing something towards the removal of the mists with which the questions connected with the organisation of such associations appears to be covered, I hope I may not be regarded as presumptuous if I strive to point out what are some of the principles, and the arrangements flowing from them, which have to be defined. The Cattle Plague Societies are commonly called Insurance Associations. This is a dangerous name. It is more or less founded on the presumption that, even with respect to the ordinary diseases of cattle, the amount of risk has been ascertained against which an insurance has to be effected. The limit of the rate of payment in most Cattle Societies, as an insurance for ordinary risks, has been settled on the presumption that these risks do not exceed two-and-a-half per cent. on the indemnity. Thus taking the average indemnity at 10*l.*, I am informed that most of these societies limit the contributions of their members to five shillings on each head of stock insured; but owing to this limit and to imperfect management, many such associations have become bankrupt. If the amount of risk arising from the ordinary diseases of cattle has not been ascertained, much less has it hitherto been possible to define the risk of the Cattle Plague. Whatever shall prove to be the mortality from the Plague in the whole country, the losses in different counties or unions will be very various. It is therefore clear that an average risk founded on the mortality of Great Britain, if it could be foreseen, would not be applicable to regulate the payments to an insurance fund limited to any smaller area. Such an average would be as much below the losses of some counties or unions as it would be above those of others. Yet an approximation to the mortality likely to occur in the whole country might be arrived at by a careful comparison made by experts of the rate of mortality which has occurred in other countries, and especially in those most resembling England. A Cattle Insurance Society for the whole country could only be founded upon some such data affording presumptive evidence of an average amount of risk. Is there any probability that any private society could inspire sufficient confidence, or that anything short of the foundation of a National Insurance Society by the Government would succeed? Thus, if for the sake of a basis of calculation, I assume that the whole mortality during the continuance of the Cattle Plague is likely to be one-fourth of the stock of Great Britain, and if Mr. Henley's estimate that we have eight millions of neat stock be correct, the death of two millions of stock would involve a loss to farmers of at least twenty millions of money. The premium of the insurance for eight millions of cattle would have to be calculated for the whole duration of the Plague, and if the indemnity were estimated at two-thirds of the value, more than thirteen millions of money would have to be subscribed to meet it. Insurers would have to make an average payment of nearly 1*l*. 13*s*. on every head of neat stock insured; but if the insurance were undertaken by the Government on a national basis, the whole charge might be spread over five or ten years, and paid either ratably on the heads of stock insured, or on the assessment, or otherwise; and any surplus fund might, on the cessation of the Plague, be in like manner redistributed. For the sake of simplicity, I exclude the consideration of the insurance of sheep and swine. It is also clear that on such a basis the rate of insurance for one year, or per annum, might be determined with an approximation to accuracy; and farmers would probably prefer to insure upon an annual rate rather than to enter into an engagement for five or ten years. But we may conceive that in some counties or unions the mortality might be greatly in excess of one-fourth, and if the plan of a National Insurance be not adopted, a proportionate payment would be required from insurers in such districts which would not be needed in a National Association. Hence, in the formation of local societies, arise difficulties in settling the terms of insurance. Sometimes it is not perceived that the amount of risk has not been ascertained, and then only a definite amount of payment is required, often at a low rate, on the presumption that it will be sufficient. In other associations, the maximum of the cumulative payments which each member engages to make is fixed, on the presumption that five or ten per cent. on the average value of the stock will suffice. In one association I observe that fifteen per cent. on this value has been adopted as the limit. It is clear that these several limits of liability are founded on no ascertained facts, even as to a general average of mortality likely to affect Great Britain, much less would they cover any instance of exceptionally great mortality. Wherever the stipulated payments do not cover the losses of the insurer last stricken, the association has failed to do justice. It is obvious that many of these associations are founded on illusory hopes of such justice, and that, on the contrary, many persons who have paid every instalment of the calls will have to bear their own losses, unaided by the association, because its funds will have been exhausted. Thus the extension of the system of mutual protection against losses from the Cattle Plague, is hindered by the natural hesitation of farmers to agree to an unlimited liability to meet the indemnities promised by the association to all its members who sustain losses; or on the other hand, where the liability is limited, by the apprehension that the Society may afford *no* effectual protection to those who last sustain loss. These difficulties would obviously be diminished in proportion as an approximation could be made to an estimate of an average loss, likely to occur in Great Britain, and the consequent settlement of the liability to calls on that average. But though the obstacles to the formation of societies might be thus reduced, their power to meet claims in counties or unions where an exceptionally great mortality occurred would still fail. In the absence of a National Association, the society for mutual protection in one county or union would be bankrupt before half the mortality had occurred in the insured stock of its members; while in another county or union the assigned limits of the calls might be far from being reached. Another obstacle to the progress of mutual protection societies, is the reluctance of small farmers to sign any contract deed, or even any document binding them to fulfil the conditions of the association. In lieu of this, some societies, composed of opulent and intelligent farmers with extensive arable culture, have agreed that fifty per cent. of the indemnity of two-thirds of the value of the stock which have perished by the Plague, shall be retained, to meet the future calls of the association. Where the farms are small and the farmers poor, the whole idemnity is indispensable to the farmer, to enable him to purchase fresh stock. Consequently, societies composed mainly of small dairy farmers decline the suggestion of any such society for the payment of future instalments, or limit it to ten per cent. on the indemnity. Moreover, these societies are often founded on the misconception that they are identical with insurance associations with an ascertained risk, and that one rate of payment can equitably, to other members, insure a farmer against cumulative casualties. Thus, if a farmer have twenty head of stock, and pay the successive calls on this twenty, he may lose them all, and it is conceived in some societies to be equitable to other members of the association, that he should receive the indemnity not only on this twenty, but as often as he shall encounter any further casualty, even if he lose his whole stock a second or a third time, without any increase of the rate of instalments to be required from him at any stage of those successive losses. The extension of the Cattle Plague to sheep also raises questions as to the facility of its communication to them, and the rate of its diffusion and mortality, on which no sufficient information is generally possessed. Yet without sound data it is impossible to settle the conditions on which sheep can be admitted as subjects of indemnity in existing societies, nor can separate associations be safely founded on entirely unknown risks. I might almost indefinitely extend the enumeration of the difficulties attending the foundation and management of these societies. It will be clear to proprietors, that however ably the principles of such associations will be discussed and settled by the opulent and intelligent farmers of such counties as Norfolk and Bedfordshire, there is little hope of making some of those principles even intelligible to the small farmers of remote districts. Moreover the most intelligent farmers would obviously prefer a National Association, founded on an approximation to the probable mortality of the whole of Great Britain, and managed by some responsible public authority, such as a Government commission, than a society which would have to encounter the risk of a mortality which might greatly exceed the average. The farmer's indisposition to report cases of Cattle Plague will be proportionate to his apprehensions of loss, for he will have an eager desire to disperse the rest of his stock during the period of incubation, lest he should either be required to kill them without compensation, or to incur the loss consequent on sending their carcases to market from a herd affected by disease. A National Insurance which covered both of these degrees of loss by that proportion of compensation which might be deemed expedient, would add greatly to the efficiency of all public measures intended to limit the diffusion of the disease by giving a premium on the immediate publicity of every case occurring among insured stock. On the other hand, by limiting the indemnity to two-thirds of the loss, temptations to a want of vigilance, or to a shortsighted selfishness in speculating on various forms of risk with respect to the disease, would lose a great part, if not the whole of their force. The Government has, with great advantage to the public, founded the Post Office Savings' Banks, and more recently a system of annuities and other deferred payments based on the general principles of life assurance. If the agricultural community is to be organised to meet the imminent national calamity of the Cattle Plague by a system of independent mutual protection, I conceive this can only be effectually done by the aid of the Government exerted in some way similar to its interference in the two instances which I have cited. I need not enter into any details further than to remark that in the district inspectors appointed under the Orders in Council, the Inland Revenue officers, and the Post Office, a staff exists which, with district committees of landed proprietors and farmers, and an appeal to the magistrates in petty sessions, might efficiently work a National System of Insurance.

I feel convinced that a national system of cattle insurance under Government control is an essential and fundamental element in any method of dealing with the prevention of Cattle Disease in this country. Its advantages may be stated as:—

Firstly. Enabling us at all times and under all circumstances to know where and to what extent cattle diseases were prevailing.

Secondly. Affording an opportunity of applying the resources of science to the early prevention of such diseases.

Thirdly. Encouraging the breeders and feeders of stock, enhancing the value of land in many parts of the country where rents are kept low from the losses farmers sustain by disease, and affording the country a guarantee that everything was being done that could be done to enhance the production of stock at home, and make us independent of foreign importations.

Fourthly. Introducing a constitutional system adapted to this free country, whereby the Government would be empowered to deal promptly and unhesitatingly on the recurrence of any such emergency as that experienced on the first appearance of Russian Murrain in 1865.

The objections to it are:—*a.* That we cannot at once estimate the losses to be incurred, and hence that a tentative system must first be introduced; *b.* That the Government of this country cannot adopt a compulsory system, which is essential to the great prosperity of such an institution; *c.* That the public funds cannot be touched to guarantee any section of the community against trade losses, which should be met in the ordinary way in which losses are usually provided for by other classes; *d.* That it would create a new Governmental department, and add considerably to the duties imposed on the already overworked Ministers of State.

Confident of the inestimable benefits to be derived from a national system of live stock insurance in this country, I trust to be enabled to silence objectors.

Firstly, as to estimating the losses which we are likely to sustain.—As we shall only know the exact quantity of stock in this country three or four months hence, we can only calculate percentages, and approximatively estimate the sums of money involved in this insurance system. The amount of horned stock which we have some reason to suppose must exist in the United Kingdom is as follows:—

England and Wales (estimated in 1854) .	3,422,165
Scotland (statistical returns for 1857) . .	974,437
Ireland do. do. . .	3,493,414
	7,890,016

We may in round numbers accept the total at 8,000,000 head of cattle. An extensive collection of insurance statistics extant, though not published, and a great part of which I have personally investigated, proves that a near approximation of value of this stock is 10*l.* per head, and that the value of stock lost—which, for reasons admitting of easy explanation, is always the best—amounts to 11*l.* 10*s.* per animal.

Prior to 1842 the average mortality of the United Kingdom probably never exceeded 2½ per cent. After the introduction of the Lung Disease the rate of loss rose to 4·915 per cent. in Scotland, 5 per cent. in England, and upwards of 7 per cent. in Ireland. Cattle Insurance Companies thought twenty years ago that 3⅐th per cent. would cover all losses, whereas they eventually exacted in premiums double that amount, and then failed. This is to be ascribed to two circumstances—first, that the area of insurance was limited; and second, that no preventive measures were or could be enforced by them. It is essential to success in live stock insurance that the larger part of the horned stock of the country should be insured, and that as diseases arise they should be combated. Veterinary science is now in a position to guarantee the prevention of many fatal diseases, and this is all that is needed to render success in cattle insurance a positive certainty. Thus we find that the extraordinary mortality amongst cattle in this country has been due to forms of anthrax, which always admit of certain prevention. I never yet failed either completely to prevent or to arrest an outbreak of black quarter and other anthracic disorders in districts most infected by them. In many parts of Ireland, and indeed even in some parts of Great Britain, nearly 50 per cent. of the calves that are born die of diarrhœa. This is in a large measure attributable to improper management, and irregularities of diet, both of which can be easily guarded against. Since 1842 half our total loss amongst stock can be traced to Pleuro-pneumonia. No disease admits of more certain prevention than this by inoculation, and the Dutch long since inaugurated a successful system of insuring the cattle of those only who would adopt that and other preventive measures. If, therefore, the loss in this country amounted on an average to 5½ per cent., I am confident that the proper and energetic enforcement of preventive measures, coupled with insurance, would reduce it at least to 4 per cent.

We must now consider what is the loss to be expected from the ravages of the Rinderpest. If unchecked, this disease must carry off at least half a million of stock in 1866. Circumstances must be highly favourable to the segregation of herd from herd if this estimate be above the mark. If the rate of increase in the number of cases for the month of January, 1866 be kept up, we may expect 20,000 animals seized per week in subsequent months. As the stock of the country gets thinned, however, the rate of increase must diminish. A fourth of the stock of this country must ultimately go, if another year of hesitation and blunder similar to our experience of the past six months be allowed to pass away. Not accepting the return of the Privy Council as accurate, and believing that if the stock of this country had been insured, we should have had to pay for at least 100,000 animals already it would appear that in six months—as the losses were trifling in June, 1865—

we have lost by Rinderpest alone at the rate of 2½ per cent. per annum of the total stock of the land. This loss has been incurred when the disease has been permitted to rage, so that its victims have numerically increased with great rapidity. I propose that we should adopt a system whereby the victims may diminish in a similar ratio, and indeed I believe much more rapidly, so that 2½ per cent. per annum on the value of our stock would still afford sufficient money to enable us to exterminate the Cattle Plague.

In the steppes of Hungary the Cattle Plague has greater chances of spreading than in any other part of Europe—Russia, Holland, and England excepted. There, the annual loss on the total stock has not exceeded of late years 5 per cent. per annum. This is of course due to preventive measures.

Thus the rate at which at first sight we should have insured the horned stock of this country, had we commenced on the 1st of January, 1866, would have been 4 per cent. for the ordinary mortality of the country, and 2½ per cent. for the Cattle Plague if the stamping-out system had been followed out. In reality, however, the premium need not have been 6½ per cent., as the destruction by the Cattle Plague reduces the number of victims by Pleuro-pneumonia and other diseases; and after mature thought and calculation I believe that, coupled with sound disease preventive measures, 5 per cent. would still meet our losses. It is, however, essential that the entire value of the lost cattle should at no time be repaid. A rate of 5 per cent. over the country, and insurers receiving three-fourths of the insured value of the animals, would meet the whole. This is equivalent to more than 6 per cent., and indeed to 7 per cent. if the salvages were retained in the shape of hides, bones, &c., of the animals that died or were slaughtered. In connection with the stamping-out system the salvages would be enormous, as the stock slaughtered which had simply been in *direct* communication with the diseased animals, would realise a good price in the dead-meat markets.

I could add many calculations to the foregoing, but for the sake of simplicity, I prefer sketching a plan which has long since been matured by me for such an emergency as the present. I am satisfied that the Government could inaugurate a system of cattle insurance which would prove of inestimable value to the nation.

Secondly, the objections to a compulsory system in a free country.—These I consider fall to the ground when the great benefits to be derived by protection to the property of individuals, of the farming community, and of the country at large, are considered. The system might be made compulsory to this extent, that whenever contagious disease appeared amongst uninsured cattle, so as to endanger the live stock of the country, the uninsured animals would then and there be confiscated and dealt with as circumstances demanded.

Thirdly, as to the objections of making the public funds responsible for any extraordinary loss, I have simply to state that the country could not and ought not to grudge a few hundred thousand pounds for the protection of its most valuable animals which are so essential to our prosperity and comfort. I contend, however, that such a system of national insurance would not be a burden but a source of safety to the country at large.

Fourthly, and lastly, as to the additional labour which would devolve on Government, it is evident that if the country is prepared to pay for such a system, the brains to devise and the hands to carry out can be found. I trust that in course of time the necessity of having a responsible Minister of Agriculture connected with Government will be recognised. Apart from this, however, Her Majesty's Privy Council might add one more to its several departments, and none I am sure would be more popular nor more useful than that of Agriculture.

Since the foregoing observations have been in type some progress has been made towards solving the problem of cattle insurance for the extermination of the Plague. On the 26th of December Mr. Gladstone published, in a letter to Sir T. D. Lloyd, the following reasons against a Government cattle insurance system:—

1. The difficulty, and not the difficulty only, but the impossibility of preventing carelessness, waste, and fraud of every kind, from the first moment it should become known that the ultimate responsibility (beyond a fixed limit, which would at once be found a very, very narrow one) lay with the public purse.

2. The fact that in a number of cases particular districts and landlords have already made their own arrangements, which must have been acted upon. Were Government to move into the field, these good examples would be neutralised, and those who have met their own losses would be called as taxpayers to assist in meeting the losses of other people too.

3. If it shall appear, as is probable, that it is to prevention rather than cure or compensation that we must chiefly look, under Providence, for the mitigation of the calamity, nothing could be so unfortunate as a measure like a State guarantee, which, by relaxing vigilance and the ingenuity of self-interest, would tend to take the minds of men off a subject obviously of the greatest moment, and, as clearly, not yet sounded to the bottom. This objection does not apply to plans of a voluntary nature, where every man would be checked by his neighbours, and each scheme would have its proper adjustments.

4. If the Cattle Plague should not extend itself on a large scale, and so the losses of a severe character should be confined to a small fraction of the farming class, there seems an obvious impropriety in relieving landlords, neighbours, and rateable property from the duty of assisting, so far as assistance is necessary, those on whom the blow has fallen. And the precedent would be an evil one.

5. But if, on the other hand, the disease should extend very widely, the result must inevitably be felt in a much augmented price of meat. The consumer would then, probably, taking the country all over, pay the same or a larger aggregate amount of money for a greatly diminished quantity. All

those who were not smitten in their own cattle would thus profit largely by the disease as producers, while as consumers they would only suffer in common with the community at large. How then could the community be asked to pay twice, first for their meat in extra price, and, secondly, for the cattle lost; while landlords and cultivators of the soil would, probably, as a class, have their loss (as in a bad corn year) countervailed by a corresponding or greater benefit?

Subjoined is a second letter from the Chancellor of the Exchequer, to Mr. Ayliff of Holbeach, relating to the proposal for insurance which was urged on Mr. Waddington by the deputation of South Lincolnshire:—

Hawarden, Chester, 3rd January, 1866.

Sir,—Mr. Gurdon has forwarded to me a note of the statement he received yesterday from a deputation from South Lincolnshire, with respect to a plan of national cattle insurance.

In the first place I need not assure you of my own strong anxiety on the subject as well as that of the Government. Personally I have every reason to be on the alert, for the disease prevails extensively in this parish, and is indeed on land belonging to me.

I do not, however, see what cognisance the Treasury can, as a department, take of your plan, unless the question be whether the charge entailed by the ravages of this Plague should be borne by the Consolidated Fund.

I understand that the deputation disclaim and disapprove any such plan, and I certainly am of opinion that the funds of the country cannot be made responsible for losses incurred by the holders of one particular description of property.

I shall, however, be most ready to enter upon the consideration of any plan, or any request, brought by the deputation before the Government, and I assume that they have laid your application with regard to the general insurance of cattle before either the Lord President of the Council or the Secretary of State for the Home Department.

For my own part I shall be anxious to concur in what may appear to be best, after full consideration. But my present impressions are against the attempt to force the entire country, notwithstanding its diversity of circumstances, into uniformity of procedure. Quite apart from charge on the Exchequer, I am apprehensive also that any attempt to use the machinery of Government for the purpose of cattle insurance would of itself lead to delay in a case where all feel that promptitude is indispensable. On the other hand, I believe that in certain cases—one, at least, has been reported to me—the local organisation of counties has been employed for the purpose of pledging rateable property to bear the burden in equal proportions between landlord and tenant.

Unless I am misinformed, the people of Aberdeenshire—landlords and tenants—have met together and agreed to treat the cost of this deplorable calamity by a charge upon the rateable property equally divided between the two classes, at the same time making their own internal arrangements for working their plan. It does not at first sight appear why a voluntary arrangement (*mutatis mutandis*) of this kind might not be adopted in English counties, and some legislation for separate counties would be much easier and quieter than a plan to operate uniformly and compulsorily for the country at large.

I have the honour to be, Sir,
Your faithful servant,
W. E. Gladstone.

E. G. Ayliff, Esq., &c.

P.S. The disease appears to have been stopped by rigid measures in Aberdeenshire after 272 cases.

The following is Sir J. Kay Shuttleworth's scheme as represented and defended in his letter of 8th January:—

The plan consists of two proposals. *The first* partakes of the character of *insurance*, by diffusing an uncertain and unequal loss over all insurers in England. *The second* makes the loss thus equally diffused a rent-charge (on the farms in which cattle are insured) proportionate to the average or appraised value of the stock, and mitigates the pressure of this rent-charge by a loan for thirty years, to be repaid by annual instalments, at the same rate as the loan under the Public Works (Manufacturing Districts) Act.

As respects the *first proposal*—the diffusion of the loss over all insurers in England—there is no intention of profit, nor any risk of loss. The instalments paid by insurers are intended to cover *an actual loss* as ascertained by experience, and not a loss estimated by experts. There would therefore be no need of any *guarantee* from the Government, nor of any grant or subscriptions in aid of the losses of insurers. The whole proposal partakes of the character of insurance, because it provides in each case (by the payment of the *average* of the actual ascertained loss) against the possible incidence of a loss three or four times this average.

But even this average loss might be in certain cases an intolerable burden. It is therefore proposed to spread this burden over thirty years by a public loan, to be secured on the farms the neat stock of which are insured, and to be paid by annual instalments, recoverable as rent-charges from those farms.

If seven millions of neat stock exist in England, and one-fifth will die of the Plague, or 1,400,000 head of cattle, their value, at the average of 10*l.*, would be 14,000,000*l.*; and a compensation at two-thirds of this value, if all were insured, would amount to upwards of 9,000,000*l.* If this compensation were provided for by a loan for thirty years, and repaid by annual instalments of a rent-charge at 6 per cent., the annual charge would be nearly 560,000*l.*, diffused over the whole of the farms on which insurance was effected, in proportion to the number of neat stock insured on each. If the charge were *not* diffused over a series of years by this loan, farms which had lost a large part of their stock and had received only a compensation of two-thirds of their value would have, in addition to this burden of one-third of the value of their lost stock, likewise to pay, *in one year*, their proportion of the average loss throughout England.

Mr. Gladstone's objections, *not to this plan*, but to *other plans* which have reached him, are insufficient to justify the rejection of this.

1. The check on "carelessness, waste, and fraud in every kind" applies to a plan in which "the ultimate responsibility (beyond a fixed limit, which would at once be found a very, very narrow one) lay with the public purse." The burden in the proposal submitted would be imposed on the farms which insured, and not on the public purse.

2. The representations made from many counties show that the arrangements made by landlords and tenants by mutual assurance associations have either failed to attract general confidence or to provide compensation for the loss which has already occurred, or are paralysed by the apprehension of losses which cannot be borne without ruin within a limited area.

3. The hope that, with 11,000 *foci* of disease established, the executive authorities of a free country, with a police barely numerous enough for the ordinary protection of persons and property, can prevent the epidemic diffusion of this Plague, will be speedily abandoned when the Plague is thus established. Such a hope has no warrant in the experience of the most arbitrary Governments, who have used in vain, or with but limited effect, the *gendarmerie* and the troops of the line, under the direction of the most scientific counsels; and with a people accustomed, as the English are not, to the restraints of a despotic authority, it cannot be anticipated that any *preventive* measures will now do more than retard the epidemic progress of the Plague. Last week the deaths from this Plague amounted to 7693. As soon as they reach 10,000 weekly, the loss will be at the rate of upwards of five millions of money in a single year, and this may be destined to be doubled before Easter.

4. The agriculturists, if they adopt this plan of relief, would *help one another*. They would receive no aid in money from the State which they would not repay. There would be no "evil precedent" that the farmers who suffered small losses would not share the burdens of those who encountered "losses of a severe character," even though they "should be confined to a small fraction of the farming class."

5. Then as to the hypothesis that the increased price of meat would compensate for the loss of stock, this might enable the farmers who suffered small losses more cheerfully to pay the rent-charges of the national loan; but this

increase in the price of meat would be no advantage to those farmers who had lost all their stock, and would be a most inadequate compensation to those who had lost one-half or one-third of it.

The landlords would give the *most effectual help* on this plan by consenting to the insurance of their tenants' stock, with the security of a rent-charge on their farms for the repayment of the national loan. They would make, no doubt, liberal arrangements with incoming tenants as to this rent-charge, which would thus become a burden both on the rental and on the profits of the farm. The proprietor would remember that without this security he would have run the risk of an indefinite loss of rent, and the tenantry would acknowledge the great advantage to their class of this diffusion of the losses arising from a great national calamity.

The entire nation should feel grateful for the manner in which Sir J. Kay Shuttleworth has persevered in his original design. The result of his efforts may be gleaned from the following correspondence:—

38, *Gloucester Square, Hyde Park, W., Jan.* 6.

SIR,—I beg to submit to you, for your consideration and that of Her Majesty's Government, the enclosed memoranda as to a scheme of National Insurance against losses from the Cattle Plague, which the rapid increase of the ravages of this pest appears to me to render expedient.

In the sketch of the details of a Bill which I submit, the Government is asked to do no other thing than to diffuse the burden of losses from the Cattle Plague over the farming lands of the whole of England, without taxing any other property, or making any compensation from the public taxes, or incurring any subsidiary risk, and likewise to diffuse this burden over a series of years.

The principle on which the first part of the scheme rests is that of a National Insurance, whereby the risk is transferred from a limited area to the whole of England, and is thus equalised, being greatly mitigated in counties in which it would otherwise be an intolerable burden.

The principle on which a loan is proposed is the same as that on which loans are granted for great municipal and other public works of permanent advantage. It is proposed to spread the loss arising from a great national calamity over a series of years, in the same way that the charge of some vast outlay for water-works, or the arterial drainage of a city is diffused, lest it should be an insupportable burden to the rate-payers who sanctioned the expenditure. This principle was applied to the relief of the cotton-districts during the recent American War with great benefit, in giving a stimulus to the outlay of capital and the employment of labour. This interference of the Government is gratefully remembered by all classes in Lancashire.

The measure is submitted in consequence of a growing conviction of the inadequacy of all private efforts within a limited area, to provide by a system of mutual assurance against extensive ruin among farmers, and a consequent grievous public embarrassment.

I am, &c.,

The Right Hon. Sir G. Grey.
J. P. KAY SHUTTLEWORTH.

Whitehall, Jan. 16.

SIR,—I am directed by Secretary Sir George Grey to inform you that, having referred your letter of the 6th inst. and its enclosure, as to a scheme of National Insurances against losses from Cattle Plague, for the consideration of the Lords Commissioners of Her Majesty's Treasury, he has received in reply the letter of which a copy is enclosed.

With reference to the first part of your proposal—namely, that the burden of the loss incurred by the Cattle Plague should be diffused over the whole of England—Her Majesty's Government are of opinion that, even were this expedient, very serious practical difficulties would be found in attempting to give effect to the proposal; nor, if the attempt were made, is there any sufficient reason why the scheme should be limited to England, and not include other parts of the United Kingdom.

The Government could not properly undertake to superintend or control the machinery which would be required for the management of a National Insurance Association. They think, moreover, that the necessary result of such a scheme would be an injurious interference with county and other local associations, which are far better adapted than a national association to insure vigilance and efficiency in the administration of the funds applicable to the purpose of such association, combined with a stronger interest in the adoption of the most effectual means for checking the disease. Her Majesty's Government, however, are of opinion that the second part of your proposal—namely, that the loss should be diffused over a series of years—is well entitled to favourable consideration. If they should have reason to believe that such a proposal would be generally acceptable to the interests specially concerned, Her Majesty's Government would be prepared to ask the sanction of Parliament to a Bill authorising, under certain conditions, the advance of money from the public funds by way of loan upon adequate security to county or other local associations, with a view to spread the charge in respect of losses from the Cattle Plague over a short term of years, in cases where the amount of such loss has been considerable.

The same principle might be applied to individual land-owners, if they desire to avail themselves of it in respect of losses incurred on their estates, either by themselves or their tenants.

I have the honour to be, Sir, your obedient servant,

Sir J. Kay Shuttleworth.
H. WADDINGTON.

Treasury Chambers, Jan. 11.

Sir,—The Lords Commissioners of Her Majesty's Treasury have had before them your letter of yesterday's date, enclosing one from Sir J. Kay Shuttleworth, forwarding a memorandum as to a scheme of National Insurance against losses from the Cattle Plague, and their Lordships desire me to acquaint you, for the information of Secretary Sir George Grey, that they conceive that the inquiry addressed to them officially refers to the second part of Sir J. Kay Shuttleworth's proposal, and that it would, perhaps, be going beyond their province were they to give an opinion on the question as to whether the liability for losses by Cattle Plague ought to be extended to the whole farming lands of the country, or placed on any other than a voluntary basis; but their Lordships do not hesitate to say that, in cases where any machinery which may have the approval of Her Majesty's Government shall have been put in action for ascertaining, checking, and compensating, in whole or in part, such losses, and where it shall appear that the amount of such losses is too great to be reasonably expected to be at once discharged, they are of opinion that public funds might properly be made available by way of loan (in default of any other means of meeting the emergency) upon adequate security, with a view of spreading the charge over a longer or shorter term of years.

I am, Sir,
Your obedient servant,
H. C. E. Childers.

H. Waddington, Esq.

38, *Gloucester Square, Hyde Park, Jan.* 17.

Sir,—I have the honour to acknowledge the receipt of your letter dated the 16th inst., conveying to me the opinion of Her Majesty's Government on my proposals with respect to an Act of Parliament and a loan, to enable agriculturists to aid each other in sustaining the burden of losses from the Cattle Plague, by diffusing those losses over all insurers, and over a series of years.

I should not trouble you with any remark did I not think it probable, from one passage in the letter from the Secretary to the Treasury ("or placed on any other than a voluntary basis") that their Lordships had, from an omission in my letter to Sir George Grey, conceived that I had proposed a compulsory distribution of the average loss from the Cattle Plague over the farming-lands of England.

In my letter to Sir George Grey I ought to have inserted the limitation, carefully provided in the scheme of National Insurance which I submitted—viz., that this charge was intended to be distributed only over the farming-lands of owners who consented to the insurance of their own or their tenants' stock, and in proportion to the number of stock so insured. The initiation of this insurance was to be a voluntary act, done with the consent of the owner of the land, and in no degree compulsory. The stock-breeding districts, like

Aberdeenshire, Craven, Westmoreland, and the dales of the Pennine Chain, might easily avoid the purchase of any store stock, isolate themselves, and decline to insure on the presumption that their risk would continue to be below the average rate, as the mortality in their herds now is. Nor need such voluntary national insurance interfere with any existing association, which may have obtained sufficient confidence among farmers to maintain an independent existence. But I should be much astonished, considering the gravity and uncertainty of the risk, and the general want of confidence in such associations, if any one of them should prove to be so established that it would be unwilling to merge itself in a well-ordered national scheme.

It was not until many counties had declared that their efforts to found associations for mutual assurance had failed, that I ventured to submit to the consideration of Her Majesty's Government a plan which, by an Act of Parliament, would (by removing legal difficulties and disabilities and providing an administrative machinery) enable agriculturists more effectually to combine for the voluntary distribution of the average loss from the Cattle Plague over the farming-lands of insurers, and likewise over a series of years, by means of a loan secured by a rent-charge, to be assessed like the property and income-tax on the owner and occupier in fixed proportions.

I asked the Government to take no other responsibility than the passage through Parliament of this Act, providing the requisite legal powers and administrative machinery, which need not necessarily be that of any existing department. But I also sought, by the action of the Government and the sanction of Parliament, to inspire a confidence as to the insurance of stock which the general failure of cattle insurance associations through a long series of years has undermined.

I did not enter into the details by which carelessness, waste, and fraud might be reduced to a *minimum*. The safeguards would obviously consist in a skilful adjustment of local interests in the Act of Parliament, insuring the utmost vigilance, and even, as in Aberdeenshire, extending to measures for the suppression of the Plague.

I have only further to thank Sir George Grey for the honour which he has done me in submitting my proposals to the consideration of Her Majesty's Government, and for the courtesy of the reply.

I have the honour to be, Sir,
Your obedient servant,
JAMES KAY SHUTTLEWORTH.

H. Waddington, Esq., *Home-Office.*

In my opinion Government should do much more than it has declared itself ready to do; in the meantime, however, there is some encouragement for further efforts in establishing local insurance societies, and if the people of England act wisely they will sink petty jealousies, and join together to form out of the many associations disseminated throughout the land a grand and solid national society, with branches spreading over the whole country. The promise on the part of Government amounts almost to a Government guarantee, and I cannot see why additional guarantors, to give form and substance to any national association, should not be secured. To gauge our responsibilities must not be thought impossible. Premiums enough can be secured to be independent of public or private subscriptions, but something more is required to encourage stock-owners to insure their live stock. The insurance should be general and permanent, embracing all animals and including all diseases, and should be carried out in connection with the adoption of sound disease-preventive measures.

VII. Stoppage of Fairs and Markets.

When asked by Her Majesty's Commissioners if I would stop all movement of cattle, I suggested that at first this would have been a proper and prudent thing to do, but that it was now too late to begin (October 16, 1865). I said that I should have stopped every single store stock market, and that in order to arrest the progress of the disease, I should have slaughtered the entire horned stock on every infected farm. Combined with a system for exterminating the disease, the entire traffic of the kingdom might have been temporarily suspended, say for a fortnight, but I hold it to be impossible and needlessly severe to prevent all movement of cattle in such a country as Great Britain for any number of weeks. The cattle traffic should be regulated—stopped in some places, directed through others, and controlled differently at different periods—by orders issued direct from the central Government. I have been opposed to the recommendation of Her Majesty's Commissioners, simply because it dealt only with the cattle traffic and not with directly combating the disease. All great cattle fairs should have been prohibited, as proved by the disastrous consequences of holding the Falkirk Trysts. Great central markets should have been suppressed; provincial ones in healthy districts, for the sale of stock from such parts, could in some instances have been advantageously held. Her Majesty's Commissioners doubtlessly recommended a measure which imposed little trouble and no expense on Government. The order might have been issued, but I hold that we have not had the disease limited to the extent we might have expected it would have been, even by the already widely enforced interference with trade. Our first object should have been to hunt down the disease, and the second to regulate, and not annihilate, for a time the cattle traffic of the entire country. We have been asked to choose one of two extremes, doing nothing or completely suspending the trade in cattle. I believe there are now many who understand that *de se* and *per se* the recommendation of Her Majesty's Commissioners, apart from the impossibility of acting on it for any lengthened period, would not have resulted in the complete prevention of the Cattle Plague. Cases of indirect contagion would have occurred, and when the time came for the order to be rescinded, the malady would again have spread in all directions.

VIII. THE USE OF DISINFECTANTS.

The value of disinfectants for the prevention of the Cattle Plague has, on the whole, been exaggerated in this country.

Such agents can only be of service by directly neutralising the poison, if mixed with it, as in disinfecting fæces, and they cannot, in my opinion, shield animals from infection where the atmosphere is strongly charged with the products thrown off by diseased cattle. I have seen herds destroyed where the greatest vigilance had been exercised in disengaging chlorine in sheds and freely distributing chlorinated lime. As the virus of the disease is apt to become fixed and preserved wherever dirt accumulates and stagnant atmosphere prevents its diffusion, one can understand without any stretch of imagination that good ventilation, with steady atmospheric currents, though avoiding draughts, must be of service; and also that the abundant use of water, either alone or mixed with alkalis and decomposing agents, must be adverse to the concentration and propagation of the poison. I shall not attempt to write much on the relative value of disinfectants; and for my present purpose it will suffice to state briefly what means can be recommended to ensure purity of sheds, stables, fields, and objects by which the disease may be carried.

I. The most valuable and harmless of all agents used for the dilution and destruction of animal poisons is water; and whenever it can be used to ensure cleanliness, it should be freely employed. Boiling water is the best agent in which to immerse rugs, clothes, pails, cans, and all articles which can be thus treated without detriment. It can be used with advantage on walls, woodwork, floors, &c., but is of course most active if rendered strongly alkaline with washing soda or soda ash. The alkali effectually destroys the virus, whether used hot or cold; it causes oxidation and decomposition; and since the commencement of the outbreak I have strongly advocated its use.

II. Dry heat is of course invaluable for a great variety of purposes. No organic poison can resist a temperature above 200° Fahr., and the prolonged exposure of clothes, wood, &c., to this heat would purify them effectually.

III. Preparations of chlorine have been in great demand amongst farmers and others. I do not object to the use of chlorinated lime for the disinfection of manure, for throwing over the carcases of animals, and for free distribution where animals are not made to inhale the gas. I however object to its use in sheds and stables, and have known persons alarmed at their cattle coughing and suffering from redness of the visible mucous membranes, discharge from the eyes and nose, and extreme restlessness, all which distressing symptoms were evidently attributable to the precautions taken for disinfection. When the atmosphere of any place in which cattle are housed is to be purified, the animals must be temporarily removed and chlorine gas disengaged by pouring sulphuric acid on common salt, or using some other of the well-known mixtures for the preparation of this powerful antiseptic. All openings should be closed, so as to cause the gas to penetrate into boards and crevices; and when the place has been thus closed for two or three hours it must be thrown open freely and thoroughly ventilated before cattle are again admitted into it.

IV. Dr. Benjamin W. Richardson is a great advocate for the diffusion of iodine wherever it is suspected that an organic poison may exist.

V. Condy's preparations have been freely used to wash animals, disinfect their excretions, and purify all kinds of objects. I find them of value in disinfecting instruments, such as thermometers used with sick cattle. They are of value for washing the hands, and can frequently be found of service; but where they have to be used with a very large mass of organic matter they are too expensive and too readily decomposed to be recommended.

VI. The coal tar products have been steadily and generally advocated. Carbolic acid, cresylic acid, dead oil, Macdougall's powder, gas lime, &c., have been widely resorted to. There are those who believe that all these products are too actively preservative of organic matter to be of value in destroying the virus of Rinderpest. To solve such a question direct experiments should be instituted.

VII. Sulphurous acid gas, and the same in solution, have been employed by me as active antiseptics.

IX. Inoculation.

The Steppe Murrain attacks animals but once in their lives. It is readily induced by inoculation, and all animals recovering may be declared exempt from further attacks. In this respect it is without doubt analogous to small-pox, and to the contagious Pleuro-pneumonia of cattle. The idea of inoculating for the Cattle Plague, first entertained in Great Britain more than a century ago, was of course suggested by the success of inoculation for human small-pox. In 1754 Dodson spoke of inoculation for the Rinderpest in England. Dr. Malcolm Flemynge, in his work dedicated to the Earl of Macclesfield,* after having referred to his preventive medicine, says, "If the inoculation of calves could be brought generally to answer, all the trouble and charge my preventive matter requires would in a short time be justly superseded. I heartily wish success to it, and that it may do the highest honour to the worthy, publicspirited man who first proposed it, and even put it in execution with some encouraging success." The practice was then advocated and extensively adopted abroad. Thus in 1778 and the early part of 1779, 4075 head of cattle were inoculated in Mecklenburg, and of these only 438 died; at the time the report was published 290 more animals remained sick however, and 160 had not caught the disease. In some parts the results of inoculation were so favourable that scarcely one per cent. died. The best of the early reports on inoculation were published in Copenhagen in 1775. The operations commenced in 1770, and were continued in 1771 and 1772. The suggestions of the illustrious Peter Camper were followed. The small island of Aonde, on the south-west of Zeeland was chosen for the experiments, and the stock kept in three lots; the first, prior to being inoculated; the second, after inoculation until signs of sickness appeared; and the third consisted of sick cattle. The virus was obtained first from natural cases of Rinderpest, and afterwards from the inoculated animals. Threads were charged with the virus and passed beneath the skin in the form of setons, which were left in 48 hours or longer. On the third or fourth day Camper's saline draught was administered. It consisted of 12 ounces of common salt in water, sweetened with syrup. The inoculated animals suffered less than those naturally affected. The first 11 animals which had passed through the disease were sent into an infected herd in Zeeland, and withstood further infection. Camper's observation to the effect that pregnant cows calved prematurely, was not observed. The majority of the cows and heifers inoculated in 1770 were pregnant, and those which recovered calved normally at the full period of gestation. The greater part of the calves lived. The subjoined table gives results of the experiments:—

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* 'A Proposal in order to diminish the Progress of the Distemper amongst the Horned Cattle, supported by facts.' London, 1755.

Date.	Total No. of Animals inoculated.	Bulls.	Cows.	Heifers.	Oxen.	Calves.	Results.			Dead.	Re-covered.
							Severe.	Mild.	Negative.		
1770.											
Aug. 29	12	..	5	5	1	1	2	9		2	10
Sept. 5	8	..	3	4	1	..	7	1	..	6	2
,, 8	2	..	..	2	..	..	1	1	..	2	..
,, 14	4	..	2	2	..	..	4	..	..	4	..
,, 20	6	..	2	4	..	..	5	1	..	4	2
,, 25	8	..	4	4	..	..	8	..	..	8	..
,, 26	7	..	3	4	..	..	6	1	..	6	1
,, 9	12	..	8	4	..	..	1	11	..	9	3
,, 11	2	..	2	..	..	..	..	2	..	1	1
1771.											
June 19	30	..	..	29	1	..	..	19	11	..	30
,, 26	10	..	..	9	1	..	..	7	3	..	10
July 15	40	..	..	38	2	..	..	..	..	..	40
Aug. 17	40	..	..	38	2	..	..	..	..	..	40
Sept. 13	40	..	..	38	2	..	..	..	..	..	..
1772.											
Feb. 10	9	..	1	6	1	..	..	6	3	..	9
July 27	40	..	..	38	2	..	..	24	16	..	40
Aug. 23	40	..	..	38	2	..	1	29	10	..	40
,, 28	10	..	..	10	..	..	..	7	3	..	10
Sept. 7	15	..	..	15	..	..	..	11	4	..	15
,, 14	15	..	..	13	2	..	..	13	2	..	15
,, 28	40	..	..	38	2	..	1	33	6	..	40

Results of Inoculations.

Years.	Animals inoculated.	Recovered.	Died.	Not sickened.
1770	61	18	42	1
1771	160	91	1 killed	68
1772	169	123	2	44
	390	232	45	113

The experiments for 1770 seem most reliable, as some extraordinary observations are recorded of long periods of incubation and constant recovery quite incompatible with our existing knowledge of the disease.

So favourable, however, was the progress of the disease after inoculation in various parts of Europe during last century, that some have supposed that the malady is more virulent now than formerly. The science of last century led to the creation of a band of skilled inoculators, who dealt in inoculated cattle, which were branded to indicate their immunity from Rinderpest. In 1778 Camper suggested the establishment of inoculation institutes to keep up a supply of fresh lymph, and Ulrich Christian Salchow published a pamphlet in 1779, which he dedicated to the crowned heads of Europe, and in which he promulgated the idea that Rinderpest might be completely extirpated by inoculation. Many years did not elapse before faith in the practice began to weaken, either from the deaths which occurred directly after inoculation, or the imperfect protection afforded by it. In England failure was first observed, and Dr. Falke raised his voice against the system, basing his opposition on observations made at home, in Denmark, and in Holland.

In 1802 Frank, in 1803 Walz, in 1809 Viborg, in 1834 Jessen, and in 1846 Spinola, recommended inoculation as a means for the complete eradication of Rinderpest in Russia. In 1847 the Russian Government sought the advice of various European veterinarians who recommended the improvement of veterinary police measures, and resorting to the stamping-out system. In 1847 Dr. Barrasch inoculated 2500 head of cattle in Hungary, and of these 75 died. The serious losses in Russia, estimated at ten million roubles annually, led to the appointment of a Commission in 1852, which reported "that a system of quarantine could only be adopted in Russia when the boundaries of the native haunts of the disease were known, and that the greatest difficulties presented themselves against the extension of veterinary police measures especially in the steppes; lastly, that even existing regulations could only be very imperfectly carried out." The Commission concluded its report by drawing attention to the favourable results of inoculation in times past, and suggested the prosecution of experiments. In the same year (1852) Professor Jessen published a pamphlet on the complete extirpation of the Rinderpest, and renewed his recommendations for the establishment of inoculation institutes. He based his advice on the following propositions:—

First. We who belong to Northern and Western Europe hold that the Cattle Plague always comes to us through steppe oxen from steppe lands, and that it does not originate spontaneously amongst our indigenous cattle:

Second. So long as we do not eradicate the Rinderpest from steppe lands, the people of Northern and Western Europe are never safe from its invasions, inasmuch as they require the cattle from there:

Third. It is impossible to prevent outbreaks in the steppes, as we do not know what causes induce them; and if we did, we could not probably counteract them. Active police measures, after the disease has appeared, cannot be carried out there, so that we have but one hope, in inoculation:

Fourth. Every animal that has once had the Steppe Murrain, either naturally or as the result of inoculation, is exempt from further attacks:

Fifth. The Rinderpest is much milder in the Russian steppes than elsewhere, so that the losses as the result of inoculation are slight:

Sixth. When the required number of inoculated and protected cattle exist in the steppes, no dealer, no Tschumak would buy susceptible animals, and thus the exportation of the Murrain from the steppes would be prevented. So soon as it was known that in the inoculation establishments the Rinderpest was prevented, private persons would have their herds inoculated.

The Czar granted permission for a series of experiments, which were commenced in 1853 in the districts of Charkow and Kurski, and afterwards in Cherson and Wjätka. The results were unfavourable in the last-named province; but in the first two, out of 1059 inoculated animals 999 recovered. This success led to further experiments in 1854 in Cherson, Kasan, and Dorpat. Professor F. Unterberger undertook the trials in Cherson, though he was not an advocate of inoculation. He states that he accepted the office for the purpose of studying Rinderpest in the South of Russia, and in order to try inoculation with lymph from animals who had the disease with a marked cutaneous eruption. He speaks of the eruption occurring rarely, more rarely than during during last century, when the disease was regarded as an epizootic of variola. Unterberger wished to work out in the case of Rinderpest the idea suggested by Pessina in 1802, who recommended the cultivation of sheep-pox. Unterberger's most sanguine anticipations were realised in Southern Russia, near Odessa. Of sixty-four animals only one died, and that not of Rinderpest. He used some lymph preserved twenty-four hours, and some with negative results preserved for ten months and twenty-four days. Twenty animals inoculated in 1853, and eleven in 1854, were sent into the German colony Helenenthal, where the Rinderpest prevailed, and all resisted contagion. Every attempt was made to infect these animals, but without success. Not being satisfied with the counter-experiments, Professor Unterberger submitted thirty-two non-inoculated animals to contagion; twenty-two calves grew visibly leaner, and only four showed signs of Rinderpest. New test experiments were subsequently made with the inoculated animals of 1853-54, by placing them in infected localities in the province of Kasan when the Plague was very malignant. The results were favourable.

In 1855 Professors Unterberger and Jessen prosecuted experiments at Baraboi, by inoculating the experimental animals of 1853-54 with virus of undoubted activity, to determine how far its effects were modified, and further to inoculate herds which had already passed through the disease.

First Experiment.—Virus from Bessarabian bullocks, with eruptions on the mouth and nodular exanthema on the skin. The virus was kept two days. Ten bullocks were inoculated with nasal discharge, and three with the serum of blood. Seven other bullocks were inoculated that had previously had the Rinderpest.

Second Experiment.—Virus kept from two to three days. Blood from Bessarabia. Three bullocks were inoculated that had not suffered from Rinderpest. Two calves that had been inoculated in 1854. Five bullocks concerning which it was uncertain whether they had previously had the Plague. In addition to these, 27 bullocks were inoculated which had served for experiments in 1853, and 37 of those inoculated in 1854.

Of the whole 98 animals inoculated only 3 showed signs of indisposition, and these exhibited no distinct symptoms of Steppe Murrain.

In the above experiments the animals were allowed to pasture freely. Seven other animals were inoculated and kept in stalls without result. Four others were inoculated with virus from another district without result. Two calves were inoculated with virus from an inoculated animal, and with a needle on the mucous membrane of the lower lip. Both took ill and died. Virus of the third remove was used to inoculate 51 animals: 11 took the disease, and 2 died.

Professor F. Unterberger has just published an interesting pamphlet on this branch of my subject, from which I extract further historical notices:—

The Operations of the Charkow Veterinary College.

Under this head attention is first directed to the fact that the Rinderpest which was prevalent in and around Charkow in 1853, was a continuation of the outbreak which was imported into three districts of the province in 1852, by way of Tschumaki. "The disease did not extend uniformly: in some districts few animals only were attacked, and then it ceased completely; in others, it was at first very violent, then it became milder, and lastly disappeared. But it must not be supposed that the disease left for want of animals; on the contrary, in many villages it broke out only on separate farms, and left others unharmed, although all cattle in the last-mentioned farms were apparently fed and treated in the same manner as those in the infected places. An immediate contact between all cattle of the village continued after the appearance of the disease as before, and no police measures were employed to protect the healthy cattle against infection."

The first experiments were made on the 1st of August, 1853, at a time when the epizootic was very prevalent at Charkow, in the Veterinary College, on 7 cattle of the German breed; 3 recovered and 4 died.

On the 10th of September a second series was undertaken, to discover if cultivation of the virus by transfer from inoculated to non-inoculated animals was possible. For this purpose, Little Russian cattle were bought at a place where Rinderpest at the time had not broken out. By these attempts 10 removes were inoculated one after the other, and in the report we find: "It was distinctly discernible that the operation of the lymph was in the last 7 removes much milder and weaker, so that of 13 head of cattle inoculated with the 10th remove only

1 died; whereas in the first 3 removes, 3 died out of 16 inoculated animals."

Professor Unterberger had the opportunity of seeing the more detailed manuscript reports of the Charkow Veterinary College, with regard to the mentioned attempts, and he made the following notes:—

With the	1st	remove	were inoculated	2	head of cattle,	of which died	1,	recovered	1
,,	2nd	,,	,,	1	,,	,,	..	,,	1
,,	3rd	,,	,,	3	,,	,,	2	,,	1
,,	4th	,,	,,	2	,,	,,	..	,,	2
,,	5th	,,	,,	2	,,	,,	..	,,	2
,,	6th	,,	,,	3	,,	,,	..	,,	3
,,	7th	,,	,,	2	,,	,,	..	,,	2
,,	8th	,,	,,	1	,,	,,	..	,,	1
,,	9th	,,	,,	2	,,	,,	1	,,	1
,,	10th	,,	,,	1	,,	,,	..	,,	1

In accordance with the method generally adopted of expressing the loss in per centages, the losses by these experiments would be: 1st remove, 50; 2nd, 0; 3rd, 66⅔; 4th, 5th, 6th, 7th, and 8th remove, 0; 9th, 50; and in the 10th remove 0 per cent.

The counter-tests, to which 10 of the recovered animals were subjected, proved very favourable. Although they were exposed in a place where Rinderpest had been prevalent only a short time before, all the 10 animals remained perfectly healthy.

Nearly at the same time when the attempts in Charkow and near Odessa were made in 1853, Professors Prosovew and Solotowsky made some inoculation experiments in the village Ischewskoi, situated in the district of Wjätka, which is celebrated for its small arms factory.[*]

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[*] 'The Significance of Rinderpest Inoculations in the Practice of Veterinary Medicine,' by A. L. Solotowsky, 1856.

Three calves, the mothers of which it was asserted had never had the Rinderpest, were selected for the first experiment on the 30th of August. The lymph was four days old, and had been obtained from a calf which had died in the neighbourhood. It was attended with no apparent result, and these calves, although they were repeatedly inoculated and placed together with animals sick of Rinderpest, remained perfectly healthy.

In a second experiment on the 6th of September, and for which 3 calves were taken from cows that had recovered from Rinderpest, the animals, in spite of repeated attempts at infection, remained healthy.

Inoculations by Removes.—1st Remove.–Of 3 calves, inoculated on the 14th of September with matter three days old, and taken from a heifer which had died of Rinderpest, 1 recovered and 2 died. 2nd Remove.–On the 23rd of September 2 calves were inoculated, with matter obtained from a calf inoculated with the 1st remove and recovered: both recovered. 2nd Remove.–Two calves inoculated on the 2nd October with matter from a recovered calf (1st remove). Result: 1 died, 1 recovered. 3rd Remove.–Day of inoculation, the 9th of October. Matter from a recovered calf inoculated with the 2nd remove; 2 calves inoculated; 1 died, 1 recovered. 3rd Remove.–One calf, inoculated on the 13th of October with matter such as that used for the above-named animals, recovered. 4th Remove–was performed on the 17th of October on a heifer and 3 cows. These animals, as well as those previously mentioned, belonged to the native breed. The virus, 3 days' old, had been obtained from a calf inoculated with the 3rd remove which had recovered. These four animals recovered. It would be desirable that Mr. Solotowsky, who is at present Professor of the Imperial Medical Surgical Academy in Petersburg, should publish his highly instructive work in the German language. The attempts made under the superintendence of Professor Prosovew belong to the most rational ever undertaken in Russia, and furnish, next to those of Dorpat and other places, the proof that if the real Rinderpest appears after inoculation, the incubation of the malady never exceeds ten days.

Experiments in the Central Kirgisian Horde in 1856.*—On the 1st of August the veterinarian Kobuschew, obtained matter from a cow sick of natural Rinderpest, and inoculated with it on the 4th of August 15 head of cattle; 14 fell sick, and of these 1 died. On the 14th of August he inoculated 25 head, with matter from an animal inoculated with the 1st remove; 12 recovered, 13 died. Of 28 head of cattle inoculated on the 5th of September with the 3rd remove, 26 fell sick and 10 died. Thirty-eight head of cattle were inoculated with the 4th remove on the 23rd of September; 29 fell sick severely, 8 mildly, 1 not at all, 15 died. 5th Remove.–Of 20 head of cattle inoculated on the 3rd of October, 8 fell sick violently, 12 mildly, and 2 died. 6th Remove.–Of the 10 head of cattle inoculated on the 15th of October, none died; they were slightly affected.

It is to be regretted that the attempts with the 4th remove were interrupted suddenly. Professor Jessen communicates from the original report of Mr. Kobuschew, that he was obliged to discontinue these attempts in consequence of the early commencement of the bad autumnal weather.

It ought to be mentioned here that 6 bull-calves inoculated in the same Kirgisian Horde in 1855, were placed with those inoculated with the 1st remove on the 4th of August. Of these,

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* 'Review of Rinderpest Inoculations,' by N. Halicki.

5 fell sick and 3 died = 60 per cent. Further: On the 25th of August, 6 oxen were inoculated with matter which had been obtained from the previously-mentioned cow sick of natural Rinderpest, and had been used for the 15 head of cattle as stated above. It produced on these 6 oxen no result; but when they were inoculated afterwards with the 4th remove all fell sick, and 2 of them died.

In the village belonging to Mr. Wasskow Rinderpest was prevalent from the 28th of September to the 22nd of October;* of 221 head of cattle, 52 fell sick; of these 29 recovered, and 23 died. The inoculation commenced on the 11th, and was continued to the 22nd of October. The matter was taken from an animal which had been inoculated in the Veterinary College with the 3rd remove. One hundred and twenty-nine inoculated animals fell sick, and of these 19 died. On the 17th of October 17 head of cattle belonging to Mr. Karapski were inoculated with the 5th remove. They fell sick between the fourth and eighth day after inoculation; 14 recovered, 3 died. Twenty-six head of cattle belonging to Mr. Panow were inoculated on the 24th of October, with the 5th remove; to the eighth day after inoculation all had fallen sick; 21 recovered, 5 died. On the same day, 25 head, belonging to Mr. de Dimitriew, were inoculated with the 5th remove; 21 recovered, 4 died.

On the estate of Count Podgoretschani-Petrowitsch the Plague appeared on the 6th of October; of 2 animals, 1 died and 1 recovered. Between the 21st and 30th of October 63 head were inoculated with matter of the 4th and 5th remove, and with some obtained from the above-mentioned animals which had recovered. None of the animals fell sick with perceptible symptoms of Rinderpest, and none died. The entire loss was therefore only 1 animal. Of 68 head of cattle on the estate of Mr. Stremanchow, 14 fell sick between the 19th and 26th of November; 11 of these died and 3 recovered. After this, 54 head were inoculated with matter of the 9th remove from the Veterinary College; they all fell sick between the fifth and tenth day after inoculation; 43 recovered and 11 died.

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* Trials made by the Members of the Veterinary College of Charkow, in the provinces of Charkow and Kursk, and the Central Kirgisian Horde, in 1853.

During November and to the 7th of December, 50 head of cattle on the estate of Mr. Kwitka fell sick of natural Rinderpest; 28 died. From the 7th to the 28th of December 52 head were inoculated with matter obtained from cattle which on the same estate had recovered from the disease. All inoculated animals had, from between the fourth and tenth days after inoculation, cough, discharge from the nose and eyes, and some had a slight diarrhœa, but all recovered.

During the Year 1854, on the estate of Mr. Poliewsky there were only native cattle of the Little Russian breed, which, until the year 1852, had never been attacked by epidemic diseases. In August, 1852, and in February and June, 1853, they fell sick with the Foot-and-Mouth Disease, but none died. In January, 1854, 4 head fell sick. Diagnosis: Rinderpest. Three died, and the fourth, a cow-calf, recovered.

The latter supplied the matter with which 23 head of cattle were inoculated on the same estate on the 15th of January. On 10, distinct signs of Rinderpest became developed between four and ten days after inoculation; but the other 13, with the exception of a swelling on the inoculated spot, did not fall sick at all. Seven recovered, 3 died. A calf, on which there was not even a swelling on the inoculation spot, was re-inoculated, but without success.

From the 15th of January to the 12th of February, 22 head, belonging to peasants, fell sick of natural Rinderpest, 11 of which recovered and 11 died. The remainder of the herd was inoculated with matter from a six-year-old bull, which had recovered after having been severely sick. Only 1 animal showed symptoms of Rinderpest, but it recovered; 12 others remained healthy.

In another village, belonging likewise to Mr. Poliewsky, the result of the inoculations was the same. Between the 18th of January and 12th of February, out of 11 animals sick of natural Rinderpest 5 had died and 6 recovered. Fourteen were inoculated; 9 fell sick, and 3 of them very severely: not one died; 5, with the exception of the swelling at the inoculated spot, did not fall sick at all.

The same result attended the inoculations which were performed on different estates by members of the Charkow Veterinary College, from between the 6th of January to the 4th of May, 1854. Of 908 inoculated animals, only 17 died; *e.g.* 1 out of 148; 1 in 22; 3 in 56; 9 in 59; 1 in 5, and 2 in 30; with the remaining 17 experiments, of 588 inoculated animals not one died. Two of these 34 attempts ought to be especially mentioned. The first was made on the estate of Madame de Swerew, in order to ascertain what result inoculation would produce on such animals as had recovered from natural Rinderpest. On the estate mentioned the disease had been prevalent in December, 1853. Of the whole herd, consisting at the time of 31 head, 30 fell sick, 16 died, 14 recovered, and only 1 nine-year-old cow of Little Russian breed, did not fall sick at all. The last-mentioned 15 head of cattle were inoculated on the 23rd of February, 1854, with new pest virus. There appeared in all a swelling at the inoculated part, differing in size between a hen's egg and a fist; in some an increased secretion of tears, and a mucous discharge from the nose was observed, but no distinct signs of Rinderpest, and all recovered.

The second trial was proposed to determine how long the virus of Rinderpest could be preserved without losing its efficacy. For this, liquid from the nose, eyes, ulcers in the rectum, and the blood of animals suffering from Rinderpest had been preserved in well-closed vessels, at a temperature of from 8° to 10° Reaum., in a dry cellar of the Veterinary College. These substances had been obtained from animals which had been very severely affected, and of which the greatest number had died. They had been collected in December, 1853, and in February and March, 1854, and were used repeatedly on six experimental animals in the clinic from the 4th of May to the 16th of June, 1854. The whole were completely decomposed, covered with mould, and stinking. At the part inoculated a swelling appeared, but the animals otherwise remained healthy. To obtain a decisive result, the cattle were inoculated twice after this with fresh matter only two days old, but again without effect, except the previously-mentioned swelling. As the temperature at the time of the last inoculation in and around Charkow had reached the height (on the 3rd of June) of 30° Reaum., it was supposed that the fresh matter had lost its strength in consequence of the heat. The assistant to the clinic, Chirikow, therefore collected on the evening of the 15th of June, in the town of Solotschew, forty wersts distance from Charkow, matter from sick animals, which was employed on the next day. After a lapse of three days more decided symptoms of the disease were observable, namely: fever, pulse 95, heat over the whole body, loss of appetite; the evacuations had become less frequent; cough very similar to that of Rinderpest;

discharge from the nose and eyes; weakness in the loins and pains in the region of the fourth stomach. On some animals diarrhœa appeared; but all these symptoms vanished after five days, and the animals had then recovered. On the estate of Mr. Gordegenko, Rinderpest appeared at the end of December, 1853, and by the 25th of January, 1854, 20 head of cattle belonging to peasants died. The cattle belonging to the estate were on a cattle-farm about one and a half werst from the village; prior to the inoculation none of them fell sick of Rinderpest there. Ninety-six animals were inoculated on the 29th and 30th of January, and on the 8th, 9th, and 23rd of February, with matter from those animals which had been inoculated on the 22nd of January with the 3rd remove, and with other matter one day old, and collected from animals suffering from Rinderpest. On all inoculated animals a reaction took place. On some, mild symptoms of Rinderpest supervened; on others, and these were the most numerous, the well-known swelling appeared, varying in size from a goose's egg to an orange. Thus matters stood till the end of February. Then, in consequence of natural infection, the Rinderpest appeared in the experimental herd, and 35 head died one after the other; the last at the commencement of April.

On the estate Kadinetz, belonging to Mr. Podgoretschani, oxen were admitted in 1853 from Tschumakes for the purpose of being fattened. In a week four of these oxen died of Rinderpest. The carcases, after the hides had been removed, were left above ground, at a place near to which the animals were driven daily to water. On the 3rd of February the inoculations on the estates of the previously-named gentleman were commenced, and continued to the 30th of March. Of 8, 1 died; of 73, 5; of 12, none; of 8, none; 36 died out of 63, and 9 of

83—altogether 51 head. Even more unfavourable results were obtained by the attempts on the estates of Countess Kleinmichel. Since October, 1853, Rinderpest had been ravaging the neighbourhood, and commenced to decrease when the inoculations were commenced, after the disease in a neighbouring township had left scarcely the twentieth part of a herd unscathed.

On the estate Dmitriewki, Tyrolese and Swiss cattle, amongst which an admixture of foreign blood was observable, were bred. On the 15th of March 68 head of cattle were inoculated; amongst these were 43 cows, 12 calves, and 4 bulls, of the Tyrolese and Swiss breed, and 9 cows of the Ukraine breed. The virus which was used for the inoculation of the foreign cattle had been obtained from a bull in the neighbourhood, which had recovered from the inoculated disease; but for the inoculation of the Ukraine cattle, the matter had been procured from a village in Kurskisia, where 215 head of cattle had died out of 330. Of the foreign cattle 40 died from three to ten days after inoculation, but all the Ukraine cattle recovered.

On the Chutor Sürzow, Ukraine cattle are bred, and there likewise an admixture of foreign blood is observable. On the 23rd of February 55 oxen of this breed were inoculated with matter four days old, of the 3rd remove. On all these animals inconsiderable swellings appeared at the part inoculated, but no symptoms of Rinderpest, and they all recovered. Twenty-one days later the inoculation was repeated, with virus taken from cattle inoculated with the 1st remove. The Rinderpest broke out, and half of the herd (27 head of cattle) died. This case, like others, belongs to those which, previous to Veith, induced the erroneous belief that the period of incubation in Rinderpest could last several weeks.

Experiments during the Year 1855.—They were commenced on the 20th of May. Until this date from 3 to 10 animals had died daily on the estate of Mrs. Stepanow; altogether, since the disease had broken out on the 20th of April, out of 299, 142 head of cattle had died of Rinderpest. In the clinic of the Veterinary College, experiments were tried again with 4 animals that had been inoculated in 1853, and had recovered. They were not killed by the experiments in question, only the swelling at the inoculated part re-appeared. Symptoms were not observed on 4 animals, which had been bought solely for this purpose, and had never been previously inoculated, although now, the same matter (four days old) had been employed. Prof. Ostrowsky, in company with the veterinarian Kobuschew, and two students, inoculated in the Central Kirgisian horde 111 head of cattle. On 63 of these a slight result was discernible, but they all recovered. We have previously learned that of those which recovered from this experiment, 6 oxen were exposed in 1856 in the same Kirgisian horde to natural infection, 5 of them fell sick, and 3 died, which amounts to 60 per cent.

Attempts during the Years 1856 *and* 1857.—These took place in the Kirgisian horde in 1856, as mentioned before, and in the Veterinary College, and consisted in buying young cattle (the number is not mentioned) which had not had Rinderpest; they were inoculated with virus which had been preserved in the College since the years 1853, 1854, and 1855. In spite of all endeavours in the months of January and February, 1856, and in February, 1857, to infect the animals, no result could be obtained.

Attempts during the Year 1858.—On the 29th of October, Mr. Waszkow, after having been convinced of the utility of inoculation, inoculated 89 head of cattle, nearly all of which fell slightly ill, but recovered. On another estate the same result was obtained with 9 head: but on another estate, belonging to Mr. Kwitka, the result was unfavourable. The natural Rinderpest broke out in the herd of this gentleman, and from its commencement to the 25th of November, 46 head died, all two-year-old heifers. During the period from the 25th of November, 1858, to the 2nd of January, 1859, 35 other head fell sick, and of these 16 died. It is worth mentioning, that amongst the animals which fell sick of natural Rinderpest and died, there was not one which had recovered from the inoculated disease in 1854. Although there existed no doubt that all the animals had been infected, to satisfy the wish of Mr. Kwitka, the inoculation was performed on the 14th and 23rd of December, 1858. On the first-mentioned day two four-year-old bull-calves were inoculated, and on the 23rd, 22 milch cows, all between six and ten years old, and of Ukraine breed; likewise 22 draught oxen, between four and ten years old. Of 45 inoculated animals, 13 oxen between four and five years old fell severely sick, and 8 of them (61½ per cent.) died; of the other animals, besides the swelling at the inoculation spot, no further general morbid symptoms could be perceived.

Experiments during the Year 1859.—From the 9th to the 23rd of October, Mr. Stepanow inoculated on the estates of the Messrs. Sadousky:

Sucking-calves	69	of these there died	10
One-year-olds	6	,,	1
Bulls 2 years old	159	,,	26
Heifers 2 years old	26	,,	6
Bulls 3 years old	28	,,	2
Heifers 3 years old	22	,,	5
Cows 4 years old............	11	,,	..
Draught oxen	195	,,	33
Cows	18	,,	5
Milch cows	60	,,	1
Bulls...........................	34	,,	3
Altogether inoculated	628	died	92

Since the year 1859 the inoculations have been discontinued in the districts of Charkow and Kurskis; but the Rinderpest, "which never ceases in those regions," according to Mr. Halicki, Director of the Veterinary College at Charkow, has always prevailed.

It is well known that the directors of two inoculation institutes proceeded differently with regard to the preservation of the virus (tears, mucus from the nose, &c.), and asserted they had learned that in consequence it became gradually milder.* The reaction which took place after its use was generally very inconsiderable, and consisted in a somewhat augmented secretion of tears on inoculated animals, cough, loss of appetite, and other less apparent symptoms of the disease; sometimes the animals manifested scarcely perceptible symptoms, or none at all; and nevertheless they were, so it was asserted, protected against any future attack of Rinderpest.

The Director of the Inoculation Institute of Bondarewka, Mr. Sergegew, inoculated, with cultivated lymph obtained from Prof. Roschnow, all animals belonging, almost without exception, to private individuals, but those belonging to the Crown were generally inoculated with fresh lymph, in consequence of which, symptoms of Rinderpest were observed, more or less, on the animals belonging to private owners, which were more frequently subjected to counter-tests. Mr. R. considered it the more necessary to subject the last-mentioned animals to a more careful control, because amongst those inoculated by Mr. S. in four years, out of nearly 1000 head, more than 90 per cent. were the property of private individuals.

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* Extract from the Report of the Superior Veterinarian by the Medical Board in the Ministry of Crown Lands, Professor Roschnow, at present doing duty at the Veterinary Institute of Cherson.

In the institute there were 14 head of cattle of this description; but the Director did not permit their being inoculated again with fresh virus, "because he feared that the cattle, in consequence of the injury with the inoculation needle, and as maggots appear in the inoculated parts, they might lose condition on the bare and bad pasture-ground." For this reason, thus reports Professor R., he mentioned no proprietors who might have been willing to give a few head of cattle of their own, in order to have them subjected to counter-tests. Fortunately, continues Professor R., the proprietress of an inoculated herd, Mrs. Kotschani, visited Bondarewka on the 26th of August, and expressed her readiness to give 6 of her inoculated animals for the purpose, under condition of being compensated for losses. With regard to the result of the inoculation of her cattle, which were inoculated on the 3rd of June, 1863, with matter seven months and three days old, Mr. Sergegew reported to the Committee for the Improvement of the Veterinary System and of the Measures for the Suppression of Epizootic Diseases, at Petersburg, that he had inspected the herd in question only once after inoculation, and added that according to the assertion of the drovers, the lymph had produced effects on many; cough, continual lying on the ground, and discharge from the eyes had been the consequences. Mr. Sticksel confirms Mr. R. in stating the cattle were more or less sick after the inoculation. On inspecting the books of the institute, it was found that it had not been noted down if symptoms had been observed on the animals inoculated on the 3rd of June, or if any had been observed. The results of inoculations which were undertaken on the 29th of August in presence of the entire Commission, on the 6 above-mentioned cattle, and on the 2 young bull-calves which had not previously been inoculated with lymph obtained from a calf sick of natural Rinderpest, were as follows: all inoculated animals fell sick of Rinderpest, and until the 7th of September, the day when the Commission left, 2 head, belonging to Mrs. Kotschani, had died; 4 remained severely sick; 1 of the animals belonging to the crown which had been inoculated with the 1st remove had died, and 1 gave hopes of recovery.

A few days before this experiment, Rinderpest broke out in consequence of natural infection amongst the 14 previously-mentioned head of cattle. Eight of them, belonging to Mrs. Krusser, had been inoculated on the 22nd of May, 1863, with matter six months and nineteen days old, and on 3 of them, according to the report of Mr. Sergegew to the Committee, the inoculation produced results; they were dull, did not eat, and coughed. It is a pity, says Professor Roschnow, that these animals had not been marked; and in consequence it could not be ascertained if the animals had fallen sick after being subjected to the counter-test, whether the inoculation had been effective or not at the first time. Result: Of the 8 animals belonging to Mrs. Krusser, of a steppe breed, one and two years old, 4 fell sick, and of these 3 died. Of the other 6 head of the herd in question, which were likewise inoculated in May, 2 fell severely sick, of which, when the Commission left, 1 gave hopes of recovery.

Inoculation by Removes, undertaken under the supervision of Professor Roschnow, from the 2nd of August till the 8th of September, 1863.—1st Remove.—For this experiment 4 head of cattle were selected which had not been inoculated previously (2 bull-calves of German breed and 2 steppe calves), besides 4 other head which had previously been inoculated. It was found out later that an error had occurred in the selection: 7 head, namely, of those which had been selected, had not been inoculated before. In the absence of a branded mark, it was very difficult to distinguish in the institute the inoculated animals from those which had not been inoculated. All were inoculated with matter one day old, and obtained from the German colony Waterlow, about four-and-a-half miles distant from the institute, where the Rinderpest was prevalent. Result: On 3 inoculated animals active symptoms of Rinderpest appeared on the fourth and fifth days, 2 died, the 3rd recovered; 3 others showed very slight symptoms, and 2 did not fall sick at all. 2nd Remove.–Inoculated 2 two-year-old bull-calves of German and steppe breed. Both fell sick on the fourth day; the attacks were severe. The calf of German breed died, the other recovered. 3rd Remove.–Two calves of German and steppe breed, fifteen months old. Period of incubation again four days. The steppe calf died, the other recovered. 4th Remove.–Again two calves of steppe and German breed, 1 one-and-a-half and the other three years old, were selected for this attempt. Incubative period five and six days. Both died.

Trials made with older Lymph.—It had been preserved by Mr. Sergegew in hair tubes, with both ends hermetically closed during nine months and nineteen days, and was tried on 2 calves. It remained without effect. The lymph tried on 1, 3, 3, 4, and 1 calf, which Mr. S. had preserved nine months and twenty-four days, Professors Jessen and Rawitsch thirty-one days and thirty days, likewise eleven months, and one month and twenty days, proved just as useless.

Professor Rawitsch visited in 1863, in the course of his journey to Cherson, the Count Podgoretschani-Petrowitsch, in the province of Cherson, and mentions in his report having heard the Count declare that he would not have his cattle inoculated a second time after the unfavourable experiences of the past. The Count and the elders of his village confirmed the assertion of Regimental Veterinary Surgeon Dudarew, that out of 400 head of cattle which had been inoculated in 1854, about 120 had died. Dudarew and Orlow, then students at the Veterinary College of Charkow, had been commissioned to perform the inoculations on the estates of the Count Podgoretshani-Petrowitsch.

With regard to the manner in which the police measures were formerly enforced at the Inoculation Institute of Bondarewka, Professor Rawitsch makes the following astounding statement in his Report: "The servants in Bondarewka who had to tend the sick animals were sometimes occupied even with the healthy; they caught them when they were intended for inoculation, opened the bodies, and interred them." The subjoined communication, made by Mr. von Scheidemann, assistant to the chief superintendent of the estates belonging to the Grand Duchess Helena Paulowna, is also remarkable: "In 1860, Rinderpest of a very virulent character was prevalent amongst a herd, which was only separated from his (the narrator's) cattle-farm by a narrow river. Although no special measures were adopted for the protection of this herd, it remained healthy." Involuntarily, on reading this, the first question that strikes one is, How many of Mr. von Scheidemann's animals would have died of the disease if some mucus from the nose, tears, blood, etc. of diseased cattle had been introduced under the skin of the cattle of his herd? Apodictically, of course, this question cannot be answered, but, if a conclusion can fairly be drawn from all the circumstances before us, the answer would be: In the herd belonging to Mr. von Scheidemann at least as many cattle would have died as in that on the ther side of the river affected with natural Rinderpest. This conclusion is justified by the facts from Dorpat. Professor Jessen went, in company of Professor A. Unterberger, on the 26th of November, 1859, to Weissensee (five miles distant from Dorpat), and to the farm Waelli, where in the course of ten days, out of 16 head of cattle, 10 had died and 3 had been killed. That the mortality was due to Rinderpest was ascertained by an examination of animals alive and dead, and measures were ordered for the protection of 60 healthy cattle on the farm and those of a peasant whose homestead was separated from this farm by a hedge. From the stable where the healthy cattle had been placed, a cow was removed on the morning of the 29th, which, in consequence of fever, shivering fits, short hoarse cough, staring coat, tenderness of the loins, liquid discharge from both eyes and both nostrils, was suspected of Rinderpest. The experiments at the Veterinary College confirmed the correctness of the diagnosis. The inoculation was performed on 2 calves and 2 cows; both these animals had been formerly inoculated with matter eleven months old, obtained from Karlowka; in consequence, both calves and one cow died of Rinderpest. The loss amounted, therefore, to 75 per cent. in the above-mentioned stable, and in the homestead adjoining the infected farm, which had likewise 14 head of cattle, none died.

Professor Rawitsch, in a recent publication, states the conclusions to which he and Professor Jessen arrived, in consequence of the results obtained at the Inoculation Institutes in the provinces of Cherson and Orenburg, in 1863. They are:—

1. "The inoculation with old lymph proved inefficacious.

2. "Animals which had been unsuccessfully inoculated with old matter fell sick afterwards, after a second inoculation, or in consequence of natural infection.

3. "The inoculation with fresh matter occasioned a very

serious loss in the Inoculation Institute of Cherson. Besides those in the Institute, 80 animals were inoculated in a village where the Rinderpest had been prevalent for some time. Of these, 16 died. It ought to be remembered that the virulence of every epizootic disease becomes mitigated in the course of time.

4. "Cattle which had recovered from the disease after inoculation could not be infected again in spite of all attempts."

Report on the Inoculation of Rinderpest in Karlowka, from May to September, 1864, *by M. Raupach.*

The first attempt was made on the 15th of May on 120 animals with matter of the 2nd and 3rd remove, which had been collected in March. The virus was completely spoiled, and the inoculation utterly failed; not a single animal was even slightly affected. Further attempts with the same matter did not prove more satisfactory.

Inoculation with Removes.—1st Remove.–6 one-year-old calves were inoculated with matter, obtained 34 hours before, from an animal sick of Rinderpest. All fell ill; 2 on the 6th and 4 on the 7th day after inoculation, were without doubt suffering severely from Rinderpest; 1 died. Loss, $16\frac{2}{3}$ per cent. 2nd Remove.–Inoculated 36 one-year-old calves. All animals were very severely attacked; 21 on the 7th, 13 on the 8th, and 2 on the 9th day after inoculation; 4 died. Loss, $11\frac{1}{9}$ per cent. 3rd Remove.–Inoculated 136 head amongst oxen and bulls one and a half to three and a half years old. On the 6th, 7th, and 8th day after inoculation all were distinctly and severely affected; 5 died; thus inducing a loss of $3\frac{2}{3}$ per cent.

2nd Series of Attempts.—1st Remove.–The same matter which had been employed for the first series, was now six weeks old; 0 two-year-old heifers were inoculated. They fell sick perceptibly and severely, 1 died, and 9 recovered. Loss, 10 per cent. 2nd Remove.–Inoculated 12 two-year-old heifers. All fell sick perceptibly and severely; 4 animals on the 6th, 6 on the 7th, and 2 on the 8th day, but all recovered. 3rd Remove.–97 two and three-year-old cows, 4 calves six months old, and 26 two-year-old oxen; altogether 127 head of cattle fell sick distinctly and severely; 34 on the 6th, 53 on the 7th, and 40 on the 8th day after inoculation; 8 (6⅕ per cent.) died, amongst them 3 two-year-old oxen. The two-year-old oxen had been bought at a fair, for which the peasants generally prepare the animals, especially draught beasts which they intend to sell, by giving them better fodder. This is accomplished principally by means of excessive quantities of mealy drinks, which certainly give the animals a sleeker and better appearance, but which is said to weaken their digestive organs, and render them less capable of resisting and overcoming diseases. These bought animals were very ill after inoculation, and suffered particularly from profuse diarrhœa. 4th Remove.–Inoculated 10 animals —bulls, oxen, and bull-calves. All fell perceptibly sick; 2 on the 7th, and 7 on the 8th day, but none severely, and none died. These, as well as other animals mentioned in this report, with the exception of 4, belonged all to the steppe breed. At the same time as the previous, and with the same virus, M. Raupach inoculated, for experiment, 4 oxen, one and two years old, of Devonshire breed. They were seized with symptoms of Rinderpest, and died between the 6th and 9th day after the inoculation. 5th Remove.–Inoculated 10 two-year-old oxen which had been bought at a market, and 2 belonging to a peasant of Karlowka. All 12 animals took the disease; 11 on the 7th, and 1 on the 8th day; 1 died, and the loss therefore amounted to 8⅓ per cent. The same remarks apply to the 10 oxen, as those stated previously with regard to the cattle inoculated with the 3rd remove.

It is astonishing, as the Report informs us, that all the steppe animals which were used for these experiments in 1864 in and around Karlowka, should possess so great a predisposition to Rinderpest. Of 349 inoculated animals all fell sick "distinctly," "severely," or "very severely," and only 10 were declared "not severely" affected. Immunity was not observed in a single animal. Professor Unterberger asks whether this fact should not be accepted as a proof how disadvantageous, under certain circumstances, the protective inoculation may be even in the steppe regions of Southern Russia, where there are herds amongst which Rinderpest had not been prevalent from ten to twenty, and in one case even forty years!

In a Supplement to his Report, M. Raupach mentions that, in 1864, Adjutant-General von Grünwaldt, bought 32 head of two and a half-year old oxen, which, at the General's request, were inoculated at Karlowka. Of these, 2 ($6\frac{1}{4}$ per cent.) died of the inoculation. "But, after inoculation was completely finished 2 more of these animals died of anthrax, which was then prevalent in and around Karlowka, and another died of an accident." As the 32 head of cattle had been insured against losses from inoculation in the Institute of Karlowka, compensation had to be allowed, and this amounted to $15\frac{5}{8}$ per cent. of the value of the animals. Altogether there were inoculated in Karlowka, from the 8th of November, 1857, to the end of the year 1864, 1189 head of cattle, which on the large stock of cattle there is a comparatively small number. According to M. Raupach, the peasants in Karlowka, in the year 1860, owned 13,000 head of cattle, notwithstanding that the Rinderpest "had been terribly prevalent amongst the herds of the Karlowka peasants and in the whole surrounding district."

Since the commencement of the present outbreak in this country I have had occasion to inoculate a number of animals for experimental purposes, amongst them 63 young animals on a farm where the disease was rapidly spreading, and all the cattle had been subjected to infection; the result was somewhat in favour of inoculation, as in 75 cases 40 per cent. of recoveries was obtained. I do not, however, recommend inoculation as a preventive. The observations I have to make on it may be thus summed up:—

First. Inoculation induces, as a rule, a mild form of disease amongst steppe cattle. On cattle of other breeds the loss has sometimes been slight, but is usually nearly as severe as that arising from natural Rinderpest.

Second. The inoculated disease is communicable by re-inoculation and cohabitation. My experience would indicate that the animals infected by simple cohabitation with inoculated cattle suffer more than those inoculated, and die in considerable numbers.

Third. The results of inoculation are seriously aggravated by cold, wet, and exposure. The most successful cases have been those carefully attended to in-doors.

Fourth. In my opinion, inoculation never can be resorted to with success, even in Russia, as a means of exterminating Rinderpest.

Fifth. Means adopted for the cultivation or modification of the virus have proved unsatisfactory, and cannot be relied on.

Sixth. Any liquid from the body of a sick animal serves to communicate the disease by inoculation.

Seventh. The period of incubation is usually from four to five days after inoculation, and the invasion of the disease is indicated first by elevation of temperature, and secondly by distinct white epithelial eruptions on the inner side of the lower lip, below the corner incisor, and on the inside of the nose.

Eighth. The cutaneous eruption not constant in natural Rinderpest is usually seen in inoculated animals.

Ninth. Sheep can be inoculated from cattle, and then again cattle from sheep, without modifying the virulence of the virus.

Tenth. I have not witnessed any modification in the inoculation with different secretions. I have tried blood, milk, abdominal fluid, contents of the intestine, frothy mucus from the windpipe, saliva, and tears.

Eleventh. I have reason to believe that glycerine modifies and then destroys the virus, as in the case of Pleuro-pneumonia. On this point further experiments are required; but I feel tolerably certain that mixing glycerine with the virus of Rinderpest cannot be relied on to obtain a mild form of the disease.

Twelfth. All animals that escape after inoculation without indicating symptoms such as elevation of animal heat, and eruption in the mouth, are not protected from further attacks.

Thirteenth. The produce of animals which have had Rinderpest is as susceptible to attacks as any other.

Fourteenth. Age does not materially affect the results of inoculation.

X. VACCINATION.

Dr. Murchison's papers on the points of resemblance between Cattle Plague and small-pox have led to innumerable experiments as to the preventive effects of vaccination against attacks of Rinderpest. Mr. Tollemache, the High Sheriff of Cheshire, who has been an active supporter of vaccination, wrote a letter to *The Times* early in January, 1866, advocating it.

Letters, telegrams, special messengers, veterinarians, from all parts of the country, have been visiting us daily for that which we could not supply. All wished for one of three rarities: some natural cow-pox lymph, some human small-pox virus, or the vaccine which may be obtained from the establishments created and kept up for the special protection of mankind from the ravages of variola. Dr. Murchison may claim the honour of having drawn attention to, and having encouraged trials on the supposed virtues of vaccination, in preserving cattle against the Plague. It would doubtless have been well had he been successful in stemming that torrent which has swept away herds large and small, and which at the present moment threatens to involve the whole agricultural community in disastrous ruin! He has only paved the way, however, for another great disappointment. Drug after drug, order after order, system after system, have just left us where I ventured to predict, as far back as last August, they would leave us. It may be unsatisfactory on my part to raise my voice loudly against every suggestion, medical or non-medical, for effecting cures, and securing preventives which might supersede the pole-axe, but unfortunately, on the vaccination question I have again been in the unpleasant position of a destroyer of hopes, and firm in my belief that until we kill out the Rinderpest it must continue to destroy our stock.

I was present at a meeting of the Pathological Society when Mr. Hancock exhibited an eruption on his hand, which was regarded as variolous, and as an example of a special eruption induced by the Cattle Plague poison. I had previously inoculated myself more times than I venture to name, and continued my *post-mortem* examinations week by week, without suffering from any eruption akin to variola or vaccinia. Was I susceptible? To solve this question, I was vaccinated—not having been submitted to that operation since infancy—from a well-developed eruption on an infant's arms. No less than five out of eight pricks proved productive of results, and I have had five well-developed and markedly umbilicated vesicles. If I escaped variolous inoculation from the Rinderpest, it could not therefore be either from avoiding such inoculation, or immunity which I enjoyed.

I cannot resist quoting a few observations on this important question from an admirable leader in *The British Medical Journal* for the 13th of January:

> The public mind has been somewhat and hastily inflamed with hopes by statements made on this subject. Men of science must not let judgment outrun discretion. Vaccination has over-hastily become the cry throughout the country, although there is at present no proof that it will serve us in this difficulty. Already the demands for vaccine are so great, that there seems a danger of vaccine-matter running short, and so that the supply for human youngsters may fail. Few of the persons, moreover, who are now rushing into the vaccinating of bullocks, have an idea of the difficulty attending the operation, and the precautions required to ensure its being effective. For these reasons, therefore, we venture to suggest a word of caution to our medical brethren. . . . There is one striking fact to be derived from the historical study of Cattle Plague, which has not been alluded to (as far as we are aware), and which, nevertheless, seems to be, *à priori*, a strong argument against the identity. It is this, that in the many very accurate histories of the terrible and numerous Cattle Plague epidemics which have now for centuries ravaged all parts of Europe, we nowhere find it stated that the disease has been communicated from the ox to man. Dr. Murchison has argued that "vaccinated persons are constantly exposed to small-pox poison with impunity." But it must be remembered that we are now speaking of the epidemics which occurred before the days of inoculation and of Jenner; when man could not have been exposed to the small-pox poison with impunity.
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> How comes it, we might ask, that at the beginning of the last century, in the epidemics which have been so faithfully described by Lancisi, Lanzoni, Ramazzini, and others, that we meet with the history of no single case in which the disease was communicated to man? When we recollect that for many consecutive years this Cattle Plague raged from one end of Italy to another; that it carried off, in some parts, almost the whole of the oxen; that herdsmen were constantly in attendance upon, and intimately mixed up with, the diseased animals, it seems almost incredible that the disease, if really small-pox, should have failed to have been—in some instances, at all events—communicated to man. That physicians were alive to the supposed identity of the two diseases is certain, from the fact that all authors speak of the supposed identity, and that it was a subject of discussion in their academies; and we may, therefore, be very sure that cases of this kind would not have been overlooked had they occurred.
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> No doubt it is true that great difficulty is experienced in communicating the disease from one species of animal to another; but still, if the case of Mr.

Hancock be rightly interpreted by those who use it as a very strong argument in favour of the identity of the diseases in question, it follows that the Cattle Plague disease *is* communicable to man. And if so, again we ask, how comes it that, in all the numerous records of the Cattle Plague, no single instance of the kind is recorded? Hundreds of thousands of oxen must have perished of the disease in Italy between 1709 and 1714. Thousands of men must have been constantly engaged in tending upon these oxen—in physicking, skinning, cutting up, and burying the infected animals;* and yet we have no record of the disease having been communicated in any instance to these non-inoculated, non-vaccinated, utterly unprotected men. Lancisi, who has left us nothing to add to his description of the Cattle Plague, tells us of no such case, and, indeed, denies the identity of the two diseases. His masterly eye would have hardly missed such an important fact, had such an one ever occurred; and, as the medical world in 1712 were discussing the question of identity at that very time, we may be sure that any such case would have been at once brought under their notice.

Cattle that have been vaccinated are dying. Some may not have been vaccinated successfully, but we are tracing reports of outbreaks where we know, from undoubted medical and veterinary evidence, that herds which have had cow-pox in past years have been destroyed as rapidly as other herds supposed never to have been affected with variola vaccina.

Mr. Tollemache wrote a second letter to *The Times*, in which, with all caution, but with great earnestness and evidence of growing faith, he spoke of the "ray of light" in the results of vaccination on his ten cows, and added, in italics, "*I have not been able to hear of one fatal case in this neighbourhood where the operation has been successful.*" With becoming candour, he, however, stated, "*Many vaccinated* cows have died, but not one, as far as I can hear, where the vaccine has taken."

Now, in the last sentence is embodied all that is needed to caution farmers against the expensive, and useless vaccination experiments so strongly recommended. My own opinion is, that Rinderpest is not variola; I even go further, and affirm that had vaccination proved successful, the present outbreak could not be controlled by the universal practice of the present time, which has been attended with one great evil—viz., drawing the attention of the people from the only sure method whereby the Russian Plague may be driven back to its native haunts in Tartary, or in other broad plains beyond the Don and the Volga.

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* In 1746, Mauchart, speaking of an epidemic of the Cattle Plague in Swabia, says:—"All the men who were during this time engaged in feeding and curing the sick cattle, in burying, removing, skinning, and cutting up their bodies, and who breathed heavy clouds of effluvia, remained in perfect health—*omnes ac singuli sani manserunt salvique.*"

Mr. Tollemache had a thirteen months old Alderney heifer most successfully vaccinated, and placed, on the 11th of January, in an infected shed. This heifer died on the 25th of January. Other two cows similarly treated took the disease. Since then I have received reports from Nantwich and the neighbourhood to the effect that many vaccinated cattle have died. Several cases have been recorded of animals having died of Rinderpest after undoubted attacks of cow-pox. Dr. Murchison has published some of the most interesting of the unfavourable experiments. On January the 15th the Earl of Airlie sent an ox and a heifer which had been vaccinated on January 6th, and an unvaccinated ox, to an infected farm. On January 29th the vaccinated ox was dead, and the unvaccinated one very ill. The heifer was coughing. On the 7th of January Mr. Harper, of Holbeach, vaccinated two heifers successfully, and on the 18th they were placed in two separate yards where cattle were dying of the Plague. Both showed signs of the disease on the 23rd, and both died on the 27th.

A calf which had been successfully vaccinated, and three children vaccinated from it, was inoculated by Dr. Burden Sanderson, in the Albert Veterinary College, and showed elevation of temperature on the 4th day, and has since presented the active symptoms of Rinderpest.

Two cows vaccinated by Mr. Acton were taken to the Royal Veterinary College. One was inoculated, showed signs of the Plague on the 6th day, and died on the 11th; the other was exposed to infection, showed symptoms on the 7th day, and is still ill.

I might quote many more instances of failure. The French Government has forwarded four successfully vaccinated heifers from Paris to the Albert Veterinary College, in order to aid in the definite solution of the question. I had no doubt of the result from the commencement, and this mainly from the fact, that I was sure of having seen Rinderpest in cows that had had cow-pox. The Cattle Plague Commissioners have already expressed their opinion against vaccination, and after many disappointments, we are driven back to the point from which we started, as to the best means for the prevention and extinction of the Plague.

Government Measures for the Prevention of the Cattle Plague.

The occasional appearance of small-pox amongst sheep since 1848, led Government to continue from session to session an Act passed in the 11th and 12th years of Her present Majesty's reign to prevent the spreading of contagious or infectious disorders among sheep, cattle and other animals. In 1864 an attempt was made to legislate further on the subject; but the efforts of Government were defeated, and, I regret to say, amongst the opponents of Government were cattle-dealers, cattle-importers, and veterinary professors in London and in Edinburgh. Instead of the inquiry before the Select Committee of the House of Commons in 1864 leading to more stringent measures for the prevention of contagious diseases in animals, it absolutely led to a relaxation of existing regulations;

and whereas the presence of a sick animal in an imported cargo had before been sufficient to secure the condemnation of an entire herd, it was ruled by those in authority that inspectors should only seize and slaughter animals actually sick, thus permitting infected beasts to pass.

It is therefore not to be wondered at that when the Cattle Plague reached England in the spring of 1865 no system existed whereby information respecting the disorder could be obtained, and that the powers vested in Government, when at length the nature of the outbreak was recognized, proved wholly insufficient for that purpose. In the case of sheep much more could be done, as indeed was done in 1862 and during 1865, but with regard to cattle it was difficult at first to understand how the Government should act. The greatest error committed was undoubtedly that of not ascertaining at the earliest possible moment the exact nature of the malady. The country should have been warned in time of the impending danger, and this course would doubtless have saved many persons from bankruptcy and the authorities much trouble. In several dairies the disease raged with severity at the end of June. It was seen in the Royal Agricultural Society's showyard early in July, and, notwithstanding these warnings, a Privy Council Order issued on the 24th of the last-named month applied in general terms to any contagious or infectious disorder, inasmuch as the disorder prevailing among cattle in the metropolis, and which had lately appeared, was of "uncertain" nature. This Order simply required owners of cattle in the metropolis to give notice to the Clerk of the Privy Council of the existence of any disease in his sheds under a penalty of 20*l.* Professor Simonds has stated that the effect of this first Order in Council was to spread the disease rather more quickly than it would otherwise have been from the Metropolitan Market, from the cow-keepers sending their stock there for sale, rather than run the risk of losing it after giving information to the Clerk of the Council.

On the 11th of August the authorities ventured to use the words Cattle Plague, and to make provision for the appointment of inspectors. Any inspector had by the order then issued power to enter and inspect premises, and to prevent the removal of any sick or infected animals. It was likewise ordered that animals suffering from disease should be separated as far as practicable, and that all that died should be buried, their skins and the premises they had been in being disinfected. All offending against this order were likewise subjected to a 20*l.* penalty.

So far, this order applied solely to the metropolis, and the dairymen of London were most reluctant to give notice to the Clerk of the Council or to submit their animals to inspection. Sick and infected cows were freely sold to butchers and sent to markets, and thus the malady was propagated in all directions around London, and spread from thence into remote parts of the kingdom.

On the 18th of August the rules laid down for the metropolis were extended, by order of the Council, to Scotland, where the disease was then raging. On the 25th of the same month the removal of cattle from Great Britain to Ireland was prohibited, and, thanks to this prudent measure, which was obtained with considerable difficulty and after great clamour on the part of the Irish people, that portion of the United Kingdom was spared the ravages of the Cattle Plague.

It was as late as the 26th of August that the Orders in Council relating to London and Scotland were extended to all parts of Great Britain. The powers of inspectors were rendered operative for all parts of the district for which they were appointed, including fairs and markets. Any inspector could insist on separation of sick from healthy animals, or the slaughter and burial of those affected with the disease, or the disinfection and even destruction of fodder and manure; and, lastly, the travelling and sending to fairs or markets of any animal labouring under the malady was strictly prohibited.

Thus matters stood for nearly a month. The disease advanced; but no official reports were issued indicating the extent and position of the outbreaks. This essential matter was wholly neglected, though by the Order of the 22nd of September, consolidating and amending all previous orders, inspectors were required to report to local authorities; this Order was, perhaps, more for the purpose of knowing when inspectors were at work and how far they had travelled, than for any other purpose. The other novelties of this consolidated order, consisted in not allowing sick animals to remain on unenclosed land, on road sides, in commanding their burial six feet below ground with their skins on, in prohibiting the sale of any but fat animals for immediate slaughter in the Metropolitan Cattle Market, and lastly, in granting power to local authorities to stop markets or fairs.

The last Order issued prior to the appointment of a Royal Commission to investigate the whole subject, which appointment is treated on in another portion of this work, bore date of the 29th of September, and it referred to the removal of sheep or lambs, or their skins, from Great Britain to Ireland. Such removal was prohibited because of certain statements regarding the prevalence of the Cattle Plague amongst sheep.

The 7th Order appeared after the first report of the Royal Commissioners was issued; and by it powers were given to local authorities to close fairs and markets, and to one of Her Majesty's principal Secretaries of State to do the same when and where necessary; veterinary inspectors were unfortunately superseded to a considerable extent, and cattle could only be slaughtered if their owners refused to obey the inspector's orders as to separation.

An 8th Order, which almost immediately followed, virtually opened up closed districts, by permitting animals to be sent or carried by railway through or out of them; or any cattle brought by sea into such parts might be taken to the nearest convenient railway station for the purpose of being removed to a distance.

All the Orders issued by Council excited much discussion, and gave rise to considerable dissatisfaction. Respecting them, Mr. Wise wrote to *The Times* as follows:

Sir,—As much confusion seems to prevail as to the meaning of the orders and notices prohibiting or restraining the removal of cattle, the following summary is submitted for the guidance of those interested:—

The Orders in Council are two—one of the 23rd of November, and the other of the 16th of December, 1865. By the latter Order so much of paragraph 5 of the former Order as defines the local authority in Great Britain is revoked, the Quarter Sessions being made the local authority of the county, riding, or division in the place of the Petty Sessions.

Animal is defined to mean "cow, heifer, bull, bullock, ox, calf, lamb, sheep, goat, or swine."

There are three paragraphs authorising the local authority to prevent or restrict the removal of animals—viz., No. 16 and 18 of the Order of the 23rd of November, and No. 4 of the Order of the 16th of December.

No. 16 *relates to markets and fairs and the exhibition of cattle for sale*, and authorises the local authority by notice to prevent removal of the before-mentioned animals or any specified description thereof to any market or fair, or any place whatever within their jurisdiction, for the purpose of exhibition or sale, except under such conditions as the local authority may think fit to impose.

No. 18 *relates to the bringing of cattle from any place out of to any place within the jurisdiction of the local authority*, and authorises the local authority by notice to prohibit such animals as aforesaid, or any specified description thereof, from being brought from any other part of Great Britain into any place within the jurisdiction of the local authority, either absolutely or under such conditions as the local authority may think fit to impose, provided (1) that any person may send or carry any such animals by railway through such jurisdiction; and (2) any person may bring or send with the licence of any two justices acting in and for the jurisdiction to which the notice applies any such animals from any land or premises in his own occupation beyond such jurisdiction to any other land or premises in his own occupation within such jurisdiction.

No. 4 *relates to the removal of cattle from one place to another within the same jurisdiction, and to all such animals as aforesaid except "sheep, lambs, goats, or swine,"* and authorises the local authority, by notice, to prohibit the removal of any such animals except as aforesaid from any particular part of the jurisdiction of such local authority to any other part of such jurisdiction, or from any place or places within such jurisdiction, to be specified in such notice, to any other such place or places, also to be so specified, or from place to place generally within such jurisdiction, or within any specified part thereof, provided that it shall not be unlawful to send or carry any such animal by railway through or out of such jurisdiction, or to send or carry the same if brought from any place out of Great Britain into such jurisdiction, to the nearest convenient railway station for the purpose of carrying it through or out of such jurisdiction.

The effect of the Orders is:—

1. That the justices are not authorised to prohibit or restrain the removal of sheep, lambs, goats, and swine *from place to place within their jurisdiction*, except to a market, fair, or place for exhibition or sale.

2. That sheep, lambs, goats, or swine cannot be brought from any place *out of the county or jurisdiction*, except in compliance with the Orders in Council and of the justices of the county, &c., into whose jurisdiction they are to be brought.

3. That cows, heifers, bulls, bullocks, oxen, and calves cannot be exhibited for sale or brought from any place out of the jurisdiction or removed from place to place within the jurisdiction, except in compliance with the orders of the justices.

4. As no two local authorities appear to have adopted precisely the same orm of order, the notices must in each case be referred to to ascertain the conlitions upon and subject to which animals may be removed, but keeping in nind that so much of any order or notice as purports to prohibit or restrict he removal of *sheep, lambs, goats, or swine from place to place within the same urisdiction*, except to a market or fair, or place of exhibition for sale, is null nd void.

March, Jan. 16.

F. J. Wise.

A letter was addressed to the same paper by Lord Folkestone, vhich led to the publication of the following on the 19th of anuary:—

Sir,—Lord Folkestone has published a painful truth, of which I have been r some time cognizant, but which for prudential reasons, which will be obvious, I have endeavoured to conceal, except from brother magistrates. His Lordship solicits a power which cannot be granted him by the Government, as I proceed to show. Some months ago I submitted the following supposed case, with a request for advice from the Home Secretary of State. A drover is found with, it may be, two or 20, or 200, cattle on the public highway. He is asked by a policeman who he is, whose are his beasts, whence brought, whither bound. He refuses to answer any question. What is the policeman to do? He cannot arrest the man, and if he could, what is to be done with the cattle? He has no power to seize or detain; he can only follow, and the pursuit may last, so to speak, for any extent of distance and any length of time. The matter is not altered as a question of law even by the Plague being visible among the cattle. In such a case no person has power to interfere, except an authorised inspector, and he can do nothing where there are no Plague symptoms, should it happen that he may be within reach. Having put the case thus, and shown that a drover, so he but act upon his employer's instructions, by declining to give information, will travel through and contaminate county after county, from Liverpool to London, from Hull to Holyhead, and Perth to Penzance, I ventured to offer a suggestion. It was, that the earliest possible power should be given by the Privy Council, in order to correct so serious and expensive an evil. The reply addressed to me by the direction of Sir George Grey is now offered through your columns to the perusal of Lord Folkestone and the public. It will tend to show what a vast extent of mischief must still continue without any magisterial or constabular ability to stop it, if not to show that Parliament ought to have been called together in November in order to prevent so great a national calamity. Permit me now, Sir, to notice another matter by which the magistrates in nearly every part of England have been greatly embarrassed. I refer to the ignorance in which they have been compelled to remain as to the law of penalty, notwithstanding repeated applications for a correct opinion. Sir George Grey, with the Attorney and Solicitor Generals and various other legal officers at his command for counsel, has constantly avoided giving a direct and positive reply to the question whether penalties can be inflicted at what I may call per transaction or per animal. He has encouraged magistrates to adopt the principle of multiplied fines, but with the pleasant addition that by so doing they can force the question to an issue before the Court of Queen's Bench. Whether any magistrates desire to have their regulations and pockets submitted to such a process I have not heard, but I have some doubts whether any such are to be found, and am rather inclined to think that the Orders of Privy Council, which have puzzled us at each fresh communication, would have been more useful if they had boldly commanded us to do what we wished, or told us in plain terms by what means we could exercise our discretionary power. Let me add that I say this with no political feeling. If Lord Derby had been in the position of Lord Russell, and Mr. Disraeli of Mr. Gladstone, I should have considered them to have abdicated their duty by leaving the magistrates uninformed and unassisted as they have been left through the vacillations, if not timidity, of the existing Government. I enclose you the letter referred to.

I have the honour to remain, Sir,
Your obedient Servant,
FRANCIS LICHFIELD.

Farthinghoe Rectory, near Brackley,
Jan. 17.

Whitehall, Dec. 22.

SIR,—I am directed by Secretary Sir George Grey to acknowledge the receipt of your letter of the 11th inst., with reference to the evasion of an order of the justices through the drover of cattle refusing to give the information required; and I am to inform you that Sir George Grey regrets that the Act does not empower the Lords of the Council to enforce any other penalty for the violation of their orders than that named in the statute.

I am, Sir, your obedient Servant,
T. G. BARING.

Rev. F. Lichfield, Farthinghoe Rectory, Brackley.

The Order in Council of 3rd November, 1865, applies exclusively to the "North-Western District of Scotland."

The "North-Western District of Scotland" is defined and interpreted as meaning and embracing "the whole of the county of Argyle and the whole of Scotland lying to the north and west of the Caledonian Canal."

It is declared unlawful for any person to remove any "cow, heifer, bull, bullock, ox, calf, sheep, or lamb" to any port or place within the district above defined from any other port or place in Great Britain.

But this Order does not prohibit the removal of any of the above-specified descriptions of animals from any port or place in the district above defined to any other port or place within that district, or within any other part of Great Britain.

Two new Orders in Council have been published. One, applicable to Great Britain, and issued on 20th January, contains three clauses. The first extends the powers of local authorities. They were formerly empowered to impose certain restrictions on the movement of animals; they are now instructed to enforce similar regulations "to all raw or untanned hides and skins, and all horns or hoofs of animals as defined as aforesaid . . . . except such hides, skins, horns, or hoofs as are directly imported into the United Kingdom from India, Australia, South Africa, or America, and to the offal of any such animals as aforesaid, and also to all dung, hay, straw, fodder, or litter likely to propagate infection." There is nothing in this clause to prevent any one from removing, with the licence of two justices, any such materials from land and premises in his own occupation, to any other land or premises in his own occupation, during a time to be specified. The Order of the 16th of December relating to the transmission of animals by rail, is extended to the materials detailed above, and an amendment has been made by striking out the words "or out of" from the proviso at the end of the fourth clause.

The second Order in Council, issued on the same day as that just described, makes provision for the contingency of the Plague's extending to Ireland. The word animal is defined; the authorities are specified; persons are ordered to give notice of the appearance of the disease; *constables* are empowered to inspect, and instructed to send reports to the nearest magistrate, as well as to the Chief or Under Secretary for Ireland. Infected districts are to be mapped out, and proclaimed, and the cattle traffic within them stopped, though no restriction is placed on the carriage of carcases. Constables and sub-constables are to be posted round infected quarters to stop the egress and ingress of live stock. Those places are to be considered infected until the expiry of twenty-one days after the last case of death or recovery; and up to that time all dogs within the prescribed boundaries are to be chained. Inspectors have power to slaughter and bury. Persons who go near sick animals are to leave their clothes in the Plague-stricken districts. No drovers' dogs are to be imported into Ireland from England.

Before publishing the Orders in Council it may be well to reproduce the only Act of Parliament now in force which authorized the Government to act when the Cattle Plague was recognized amongst us:—

ACT 11 & 12 VICT., CAP. 107.

AN ACT to prevent, until the 1st day of *September*, 1850, and to the end of the then Session of Parliament, the spreading of contagious or infectious Disorders among Sheep, Cattle, and other Animals. [*4th September*, 1848.]

Infected sheep exposed for sale may be seized and destroyed, together with pens, hurdles, &c.

WHEREAS a contagious or infectious disorder, known or described as the Sheep Pox or Variola Ovina, now prevails among the sheep in some parts of the United Kingdom, and it is necessary to take measures to prevent such disorder from spreading: Be it therefore enacted by the Queen's most excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, That in case any sheep or lambs infected with or labouring under the said disorder, or any disorder of the like nature, be exposed or offered for sale, or be brought or attempted to be brought for the purpose of being so exposed or offered for sale, in any market, fair, or other open or public place where other animals are commonly exposed for sale, then and in any such case it shall be lawful for any Clerk or Inspector or other officer of such fair or market, or for any constable or policeman, or for any other person authorized by the Mayor, or by any two Justices of the Peace having jurisdiction in the place, or for any person authorized or appointed by Her Majesty in Council, to seize the same, and to report such seizure to the Mayor or any Justice of the Peace having jurisdiction in the place; and it shall be lawful for such Mayor or Justice either to restore the same, or to cause the same, together with any pens, hurdles, troughs, litter, hay, straw, or other articles which he may judge likely to have been infected thereby, to be forthwith destroyed or otherwise disposed of in such manner as he shall deem proper, or as may be directed in manner herein-after provided; and any person bringing or attempting to bring any sheep, lambs, oxen, bulls, cows, calves, or other horned cattle, into any such market, fair, or open or public place as aforesaid, knowing such sheep, lambs, or cattle to be

Penalty on parties exposing cattle for sale, knowing them to be diseased.

infected with or labouring under either of such disorders as aforesaid, shall, upon conviction thereof, forfeit and pay for each and every such offence a sum not exceeding twenty pounds.

Penalty on persons depasturing diseased sheep, &c.

II. And be it enacted, That if any person turn out, keep, or depasture any sheep or lambs infected with or labouring under the said disorder in or upon any forest, chase, wood, moor, marsh, heath, common, waste land, open field, road side, or other undivided or uninclosed land, such person shall, on conviction thereof, forfeit and pay any sum not exceeding twenty pounds.

Penalty on persons exposing for sale meat unfit for human food.

III. And whereas it is expedient for the preservation of the public health, to make more effectual provision for preventing the exposure for sale of any meat unfit for human food: Be it enacted, That if any meat unfit for human food be exposed or offered for sale in any market, fair, or other open or public place, it shall be lawful for such clerks, inspectors, constables, policemen, or other persons authorized as aforesaid to seize the same, and to report such seizure to such Mayor or Justice as aforesaid; and such Mayor or Justice may either order the same to be restored, or to be destroyed or otherwise disposed of as aforesaid; and any person publicly exposing or offering such meat for sale shall, upon conviction, forfeit and pay for each and every such offence a sum not exceeding twenty pounds.

Privy Council may make regulations as to removal of sheep, &c.; as to purifying yards, stables, &c.; as to disposing of animals dying in an infected state. and as to giving notice of appearance of disease, &c.

IV. And for the more effectually preventing the spreading of contagious or infectious disease, be it enacted, That it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such Orders and Regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal, to or from such parts or places as they may designate in such Order or Orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of this Act, are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of this Act, and again to revoke, alter, or vary any such orders or regulations; and all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in this Act; and all persons offending against the same shall for each and every offence

Penalty for offending against the same.

forfeit and pay any sum not exceeding twenty pounds, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct.

Orders, &c., to be published in Gazette and in county newspapers;

V. And be it enacted, That all orders and regulations made under the authority of this Act shall, within fourteen days after the issuing thereof, be twice published in the *London Gazette;* and in case such orders or regulations apply to any particular places or districts, then the same shall also be twice published, within fourteen days as aforesaid, in some newspaper or newspapers circulating in the County or Counties within which each of such places or districts, or any part or parts thereof respectively, is or are situated.

and to be laid before Parliament.

VI. And be it enacted, That a copy of every such order or orders shall be laid before both Houses of Parliament within six weeks after issuing the same, if Parliament be then sitting, and if Parliament be not then sitting, then within six weeks after the commencement of the then next Session of Parliament.

Penalty for obstructing persons in the execution of this Act.

VII. And be it enacted, That in case any person wilfully obstruct or impede any person acting under the authority of this Act, or of any order or regulation made in pursuance of this Act, every person so offending, and all others aiding and assisting therein, shall and may be seized and detained by such person so acting under the authority of this Act as aforesaid, or any person or persons he may call to his assistance, until such offender or offenders can be conveniently taken before some Justice of the Peace having jurisdiction in the county or place wherein such offence shall be committed, and when convicted before such Justice as aforesaid (who is hereby authorized and required, upon complaint to him upon oath, to take cognizance thereof, and to act summarily in the premises,) shall, in the discretion of such Justice forfeit any sum not exceeding five pounds, and in default of payment thereof shall and may be imprisoned for any term not exceeding two calendar months, unless the amount of the penalty shall have been sooner discharged.

Penalties to be summarily recovered before two justices.

VIII. And be it enacted, That every penalty or forfeiture imposed by this Act may be recovered by summary proceeding before two Justices; and upon the exhibition of any information in writing before any Justice such Justice shall issue a summons requiring the party complained against to appear before two Justices having jurisdiction, at a time and place to be named in such summons; and every such summons shall be served on the party offending, either in person or by leaving the same with some inmate, at his last or usual place of abode; and upon the appearance of the party complained against, or in his absence, after proof of the service of such summons, it shall be lawful for any two Justices having jurisdiction to proceed to the hearing of the complaint; and upon proof of the offence, either by the confession of the party complained against or upon the oath of one credible witness or more, it shall be lawful for such Justices to convict the offender, and upon such conviction to adjudge the offender to pay such penalty as may seem fit, and not greater than the penalty or forfeiture specified in this Act, as well as such costs attending the conviction as such Justices shall think fit.

Penalties to be levied by distress.

IX. And be it enacted, That if forthwith upon any such adjudication as aforesaid the amount of the penalty or forfeiture, and of such costs as aforesaid, be not paid, the amount of such penalty and costs shall be levied by distress, and such Justices, or either of them, or any other Justice having jurisdiction as aforesaid, shall issue their or his warrant of distress accordingly.

In default of distress, justices may commit the offender to prison.

X. And be it enacted, That it shall be lawful for any such Justice to order any offender so convicted as aforesaid to be detained and kept in safe custody until return can be conveniently made to the warrant of distress to be issued for levying such penalty or forfeiture and costs, unless the offender give sufficient security, by way of recognizance or otherwise, to the satisfaction of the Justice, for his appearance before him on the day appointed for such return, such day being not more than eight days from the time of taking such security; but if before issuing such warrant of distress it shall appear to the Justice, by the admission of the offender or otherwise, that no sufficient distress can be had within the jurisdiction of such Justice whereon to levy such penalty or forfeiture and costs, he may if he think fit, refrain from issuing such warrant of distress; and in such case, or if such warrant shall have been issued, and upon the return thereof such insufficiency as aforesaid shall be made to appear to the Justice, then such Justice shall by warrant cause such offender to be committed to gaol, there to remain without bail for any term not exceeding three months, unless such penalty or forfeiture and costs be sooner paid and satisfied.

Distress, how to be levied.

XI. And be it enacted, That where in this Act any sum of money, whether in the nature of penalty or otherwise, is directed to be levied by distress, such sum of money shall be levied by distress and sale of the goods and chattels of the party liable to pay the same; and the overplus arising from the sale of such goods and chattels, after satisfying such sum of money, and the expenses of the distress and sale, shall be returned, on demand, to the party whose goods shall have been distrained.

Distress not unlawful for want of form.

XII. And be it enacted, That no distress levied by virtue of this Act shall be deemed unlawful, nor shall any party making the same be deemed a trespasser, on account of any defect or want of form in the summons, conviction, warrant of distress, or other proceedings relating thereto, nor shall such party be deemed a trespasser *ab* *initio* on account of any irregularity afterwards committed by him, but all persons aggrieved by such defect or irregularity may recover full satisfaction for the special damage in an action upon the case.

Application of penalties.

XIII. And be it enacted, That all penalties and forfeitures recovered under this Act shall be applied as follows: one half thereof shall be paid to the person who shall sue or proceed for the same, and the other half to Her Majesty's use, and shall be paid to the sheriffs of the county, city, or town where the same shall have been imposed, and shall have been duly accounted for by him; and that all convictions before Justices, and all fines, forfeitures, or penalties imposed in consequence of such convictions, shall be returned to the court of Quarter Sessions, under the provisions of an Act passed in the third year of His late Majesty King *George* the fourth, intituled *An Act for the more speedy return and levying of fines, penalties, and forfeitures, and recognizances estreated.*

Convictions to be returned to Quarter Sessions under 3 Geo. IV. c. 46.

Penalties to be sued for within two months after commission of offence.

XIV. And be it enacted, That no person shall be liable to the payment of any penalty or forfeiture imposed by virtue of this Act for any offence made cognizable before a Justice, unless the complaint respecting such offence shall have been made before such Justice within two months next after the commission of such offence.

Penalty on witnesses making default.

XV. And be it enacted, That it shall be lawful for any Justice to summon any person to appear before him as a witness in any matter in which such Justice shall have jurisdiction under the provisions of this Act, at a time and place mentioned in such summons, and to administer to him an oath to testify the truth in such matter; and if any person so summoned shall without reasonable excuse refuse or neglect to appear at the time and place appointed for that purpose, having been paid or tendered a reasonable sum for his expenses, or if any person appearing shall refuse to be examined on oath, or to give evidence before such Justice, every such person shall forfeit a sum not exceeding five pounds for every such offence.

Proceedings not to be quashed for want of form, nor removed by certiorari.

XVI. And be it enacted, That no warrant of commitment consequent upon any summary conviction under this Act shall be held void by reason of any defect in such warrant, provided it be therein alleged that the party has been convicted, and there be a good and valid conviction to sustain the same; nor shall any conviction, order, or other proceeding in pursuance of this Act be quashed or vacated for want of form, nor shall the same be removed by certiorari or otherwise into any of the superior courts.

Parties aggrieved may appeal to Quarter Sessions on giving security.

XVII. And be it enacted, That if any person shall think himself aggrieved by any determination or adjudication of any Justice with respect to any penalty or forfeiture under the provisions of this Act, he may appeal to the General Quarter Sessions for the county or place in which the cause of appeal shall have arisen; but no such appeal shall be entertained unless it be made within four months next after the making of such determination or adjudication, nor unless ten days' notice in writing of such appeal, stating the nature and grounds thereof, be given to the party against whom the appeal shall be brought, nor unless the appellant forthwith after such notice enter into recognizances, with two sufficient sureties, before a Justice, conditioned duly to prosecute such appeal, and to abide the order of the court thereon.

Court may make such order as they think reasonable.

XVIII. And be it enacted, That at the Quarter Sessions for which such notice shall be given the court shall proceed to hear and determine the appeal in a summary way, or they may, if they think fit, adjourn it to the following Sessions; and upon the hearing of such appeal the court may, if they think fit, mitigate any penalty or forfeiture, or they may confirm or quash the adjudication, and order any money paid by the appellant, or levied by distress upon his goods, to be returned to him, and may also order such further satisfaction to be made to the party injured as they may judge reasonable; and they may make such order concerning the costs, both of the adjudication and of the appeal, as they may think reasonable.

If suit brought on account of seizure and the judge shall certify that there was probable cause, plaintiff to have 2*d*. damages, and defendant fined not more than 1*s*.

XIX. And be it enacted, That in case the Mayor or Justice to whom the seizure of any sheep, lambs, or cattle supposed to be infected as aforesaid, or of any meat supposed to be unfit for human food, may have been reported, shall upon inquiry order the same to be restored, and in case it appear to such Mayor or Justice that there was a probable cause of seizure, then and in such case such Mayor or Justice shall grant a certificate to the party making the seizure that there was such probable cause, and in such case the person or persons who made such seizure, being a person or persons acting under the authority of this Act, or of any order made in pursuance hereof, shall not be liable to any action, indictment, or other suit or prosecution on account of such seizure; and in case any action, indictment, or other suit or prosecution shall be commenced and brought to trial against any person or persons, being a person or persons acting under such authority as aforesaid, on account of the seizure of any animals, parts of animals, hay, straw, fodder, or other articles seized as forfeited under the provisions of this Act, or of any order or orders made under the authority of the same wherein a verdict shall be given against the defendant or defendants, if the court or judge before whom such information or suit shall have been tried shall have certified on the said record that there was a probable cause for such seizure, then the plaintiff, besides the things seized or the value thereof, shall not be entitled to above two-pence damages, nor to any costs of suit, nor shall the defendant or defendants in such prosecution be fined above one shilling.

Act to continue in force for two years.

XX. And be it enacted, That this Act shall continue in force until the first day of *September* in the year of our Lord one thousand eight hundred and fifty, and if parliament be then sitting then further until the end of the then Session.

Act not to affect the rights, &c. of the city of London.

XXI. And it be enacted, That nothing in this Act contained shall prejudice or derogate from the estates, rights, interests, privileges, franchises, jurisdiction, or authority of the Mayor and Commonalty and Citizens of the City of *London* or their successors, or the Lord Mayor of the said city for the time being, nor prohibit, defeat, alter, or diminish any power, authority, or jurisdiction which at the time of passing this Act the said Mayor and Commonalty and Citizens, or the said Lord Mayor for the time being, possess, by custom, charter, or otherwise, for the regulation, management, and control of markets, or the sale of infected meat, hides, skins, horns, hoofs, or other part of any infected animal, or infected hay, straw, fodder, or other article, or the Lord Mayor and court of Aldermen, or the Lord Mayor, Aldermen, and Commons of the city of *London*, in Common Council assembled, under or by virtue of any Act of parliament, did or might lawfully claim, use, or exercise.

Act may be amended, &c.

XXII. And be it enacted, That this Act may be amended or repealed by any Act to be passed in this Session of Parliament.

ORDERS IN COUNCIL.

I.—July 24.

At the Council Chamber, Whitehall, the 24th day of July, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—LORD PRESIDENT, Sir GEORGE GREY, Bart., Mr. MILNER GIBSON.

Whereas by an Act passed in the Session of the 11th and 12th years of Ier present Majesty's reign, intituled "An Act to prevent until the 1st 'ay of September, 1850, and to the end of the then next Session of Parlia-aent, the spreading of contagious or infectious disorders among sheep, cattle, nd other animals," and which has since been from time to time continued y divers subsequent Acts, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of this Act are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any such case by such order direct:

And whereas a contagious or infectious disorder, of which the nature is at present uncertain, has lately appeared, and now prevails among cattle within the Metropolis, and in the neighbourhood thereof, and it is expedient to take measures for preventing such disorder from spreading:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue and in exercise of the powers given by the said recited Act, and by the several Acts continuing the same as aforesaid, order as follows:—

1. If at the date of the publication of this order in the *London Gazette* there shall be any cow, heifer, bull, bullock, or ox labouring under any contagious or infectious disorder in the possession or custody of any cowkeeper, dairyman, or dairywoman, or of any milkman, or milkwoman, or vendor or purveyor of milk, or of any dealer in cattle whatsoever within the city of London or within the limits of the metropolitan police district, or if at any time hereafter, while this present order shall continue in force and unrevoked, any cow, heifer, bull, bullock, or ox, being in the possession or custody of any such person as aforesaid within the said city of London or within the metropolitan police district, shall be seized or attacked with, or be found labouring or suffering under any such contagious or infectious disorder, notice of the existence of such disorder, or of the first appearance of such disorder in or among the cattle belonging to or in the custody of any such person as aforesaid, shall immediately thereupon be given by the person in whose possession or custody such diseased animals or animal shall be, to the Clerk of Her Majesty's Most Honourable Privy Council in waiting at the office of Her

Majesty's Privy Council at Whitehall, in the county of Middlesex; and it shall be lawful for the said Clerk of Her Majesty's Privy Council, and for all such persons as he shall by writing under his hand authorize in that behalf, thereupon, and at all reasonable times thereafter, to inspect and examine all or any such diseased animals or animal, and to report to the Lords of Her Majesty's Privy Council all such information and particulars as to the nature or character of such disorder as may seem to him expedient for the purpose of enabling proper regulations to be made for preventing or checking the further propagation and increase of such disorder.

2. Every person offending against this order, and omitting to give such notice or to permit such inspection and examination as aforesaid, shall for every such offence forfeit any sum not exceeding 20*l.* which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) Edmund Harrison.

II.—August 11.

At the Council Chamber, Whitehall, the 11th day of August, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—Earl Russell, Sir George Grey, Bart.

Whereas, by an Act passed in the Session of the 11th and 12th years f Her present Majesty's reign, intituled "An Act to prevent until the 1st lay of September, 1850, and to the end of the then next Session of Parlianent, the spreading of contagious or infectious disorders among sheep, cattle, nd other animals," and which has since been from time to time continued y divers subsequent Acts, it is (among other things) enacted that it shall e lawful for the Lords and others of Her Majesty's Privy Council, or any wo or more of them, from time to time to make such orders and reguations as to them may seem necessary for the purpose of prohibiting or egulating the removal to or from such parts or places as they may desigate in such order or orders, of sheep, cattle, horses, swine, or other animals, r of meat, skins, hides, horns, hoofs, or other part of any animals, or of ay, straw, fodder, or other articles likely to propagate infection; and also r the purpose of purifying any yard, stable, outhouse, or other place, or any aggons, carts, carriages, or other vehicles; and also for the purpose of directg how any animals dying in a diseased state, or any animals, parts of nimals, or other thing seized under the provisions of this Act, are to be isposed of; and also for the purpose of causing notices to be given of the pearance of any disorder among sheep, cattle, or other animals, and to make y other orders or regulations for the purpose of giving effect to the provins of the said Act, and again to revoke, alter, or vary any such orders or gulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas an order was made, in pursuance of the authority of the said Acts, on the 24th of July, 1865, by the Lords of Her Majesty's Most Honourable Privy Council, applicable to the city of London and to the metropolitan police district, containing certain provisions for the purpose of preventing the spreading of a certain disorder, of which the nature was at the time of the making of the said order uncertain, but which has since been ascertained to be of a typhoid nature, and is commonly designated as the "Cattle Plague," and which may be recognised by the following symptoms:—

"Great depression of the vital powers, frequent shivering, staggering gait, cold extremities, quick and short breathing, drooping head, reddened eyes, with a discharge from them, and also from the nostrils, of a mucous nature, raw-looking places on the inner side of the lips and roof of the mouth, diarrhœa or dysenteric purging:"

And whereas inspectors have been appointed in pursuance of the provisions of such order:

And whereas it is expedient to make further regulations for the district to which the said order is applicable:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue and in exercise of the powers given by the said recited Act, and by the several Acts continuing the same, as aforesaid, order as follows:—

1. That in this order the word "animal" shall be interpreted to mean any cow, heifer, bull, bullock, ox, or calf.

2. Every inspector appointed or to be appointed under the provisions of the Order in Council of the 24th of July, 1865, shall have the power of entering upon and inspecting any premises in or upon which he has reason to believe that there is any animal labouring under such disease, from time to time, as often as he may think necessary.

3. Every person within any district for which an inspector shall have been appointed as aforesaid, upon whose premises there shall be any animal labouring under any such disorder, shall, as far as practicable, keep such animal separate and apart from all other animals, and no person shall, without the licence of such inspector, send to market or remove from his premises any such animal, or any animal which has been in the same shed or stable, or has been herded, or been in contact with any animal labouring under such disorder.

4. Every animal within any such district as aforesaid dying of such disorder, or slaughtered on account thereof, shall be buried, if practicable, on the premises where it has died or been slaughtered, or (if this be not practicable) as near thereto as may be convenient; and if such animal be

not buried with its skin, its skin shall be disinfected in such manner as the inspector of the district may direct.

5. Every person within any such district upon whose premises there shall be any animal so labouring as aforesaid, shall cleanse and disinfect such premises in such manner as the inspector of such district shall direct.

Every person offending against this order shall for every such offence forfeit any sum not exceeding 20*l.* which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) Arthur Helps.

III.—August 18.

At the Council Chamber, Whitehall, the 18th day of August, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—The Lord Chancellor and Viscount Palmerston.

Whereas, by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," and which has since been from time to time continued by divers subsequent Acts, it is (among other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time, to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of this Act, are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder has lately appeared, and now prevails among cattle within the metropolis and in the neighbourhood thereof, of which disorder the nature was at the time of the making of the order next hereafter mentioned uncertain, but which has since been ascertained to be of a typhoid nature, and is generally designated as the "Cattle Plague," and may be recognised by the following symptoms:—

"Great depression of the vital powers, frequent shivering, staggering gait, cold extremities, quick and short breathing, drooping head, reddened eyes, with a discharge from them, and also from the nostrils, of a mucous nature, raw-looking places on the inner side of the lips and roof of the mouth, diarrhœa, or dysenteric purging:"

And whereas it was expedient to take measures for preventing such disorder from spreading:

And whereas, for such purpose, an order was duly made, in pursuance of the authority of the said Acts, by the Lords of Her Majesty's Most Honourable Privy Council, dated July 24, 1865, applicable to the city of London and the metropolitan police district:

And whereas since the making of the said order, the said disorder appeared in other parts of England, and another order was, on the 11th day of August, 1865, duly made by the said Lords of Her Majesty's Most Honourable Privy Council, in pursuance of such authority, applicable to all parts of England:

And whereas the said disease has now appeared in Scotland, and it is expedient to extend the provisions of the said orders to Scotland:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue and in exercise of the powers given by the said recited Act, and by the several Acts continuing the same as aforesaid, order as follows:—

1. That this order shall extend to all parts of Scotland.

2. That in this order the word "animal" shall be interpreted to mean any cow, heifer, bull, bullock, ox, or calf.

3. If at the date of the publication of this order in the *London Gazette* there shall be any animal labouring under any such disorder in the possession or custody of any cowkeeper, dairyman, or dairywoman, or of any milkman or milkwoman, or vendor or purveyor of milk, or of any dealer in cattle, or farmer, or person in possession of cattle whatsoever, within those parts of the United Kingdom to which this order refers, or if at any time hereafter while this present order shall continue in force and unrevoked, any animal being in the possession or custody of any such person as aforesaid, within the lastmentioned parts of the United Kingdom, shall be seized or attacked with, or be found labouring or suffering under any such disorder, notice of the existence of such disorder, or of the first appearance of such disorder in or among the animals belonging to or in the custody of any such person as aforesaid shall immediately thereupon be given by the person in whose possession or custody such diseased animals or animal shall be, if such person shall reside within any burgh or town having a town-council, to the provost or other principal magistrate of

such burgh or town, or, if elsewhere, to the Clerk of the Peace of the county in which he resides; and upon receipt of such notice, or upon any other information which satisfies him or them that such disease has appeared within his or their jurisdiction respectively, it shall be lawful for such Provost or other principal magistrate and for the justices of such county, if he or they shall think fit, from time to time to appoint some veterinary surgeon, or other person duly qualified, to be an inspector for the purpose of carrying into effect the following rules and regulations within the burgh or town or county for which he shall have been appointed; and the same authority may from time to time revoke such appointment.

4. Every such inspector shall have the power of entering upon and inspecting any premises in or upon which he has reason to believe that there is any animal labouring under such disease, from time to time, as often as he may think necessary.

5. Every person within any district for which an inspector shall have been appointed as aforesaid upon whose premises there shall be any animal labouring under such disorder, shall, as far as practicable, keep such animal separate and part from all other animals; and no person shall, without the licence of such nspector, send to market, or remove from his premises, any such animal, or ny animal which has been in the same shed or stable, or has been herded, or een in contact, with any animal labouring under such disorder.

6. Every animal within any such district as aforesaid dying of such disrder, or slaughtered on account thereof, shall be buried, if practicable, on the remises where it has died, or been slaughtered, or (if this be not practicable) s near thereto as may be convenient; and if such animal be not buried with s skin, its skin shall be disinfected in such manner as the inspector of the istrict may direct.

7. Every person within any such district on whose premises there shall be y animal so labouring as aforesaid shall cleanse and disinfect such premises such manner as the inspector of such district shall direct.

8. Every person offending against this order shall for every such offence rfeit any sum not exceeding 20*l.*, which the Justices before whom he or she all be convicted of such offence may think fit to impose.

ARTHUR HELPS.

IV.—August 25.

the Council Chamber, Whitehall, the 25th day of August, 1865. By the Lords of Her Majesty's Most Honourable Privy Council.

Present—Sir GEORGE GREY, Bart.; Mr. Secretary CARDWELL.

Vhereas, by an Act passed in the Session of the 11th and 12th years of present Majesty's reign, intituled "An Act to prevent until the first day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," and which has since been from time to time continued by divers subsequent Acts, it is (among other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals; and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding 20*l*., or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder has lately appeared, and now prevails among cattle within that part of the United Kingdom called Great Britain, which is generally designated as the "Cattle Plague:"

And whereas it is expedient to take measures for preventing such disorder from extending to that part of the United Kingdom called Ireland:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue and in exercise of the powers given by the said recited Act, and by the several Acts continuing the same as aforesaid, order as follows:—

1. That in this order the word "cattle" shall be interpreted to mean any cow, heifer, bull, bullock, ox, or calf.

2. That after the date of the publication of this order in the *London Gazette*, it shall not be lawful for any person to remove any cattle from any port or place within that part of the United Kingdom called Great Britain, to any port or place within that part of the United Kingdom called Ireland.

And the Lords of Her Majesty's Treasury are to give such directions herein as may be necessary to ensure due obedience to this order.

ARTHUR HELPS.

V.—August 26.

AT the Council Chamber, Whitehall, the 26th day of August, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—Sir GEORGE GREY, Bart., Mr. Secretary CARDWELL.

Whereas, by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," and which has since been from time to time continued by divers subsequent Acts, it is (among other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulatiing the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of this Act, are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas several orders, dated respectively 24th July, and 11th and 18th August, 1865, have been made under the authority of the said Acts by he Lords of Her Majesty's Privy Council, with a view to check the spreading f the cattle disease described in the two last-mentioned orders:

And whereas it is expedient to vary the said orders:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, y virtue of and in exercise of the powers given by the said Acts, order as ollows:—

1. That this order shall extend to all parts of Great Britain.

2. That in this order the word "animal" shall be interpreted to mean any ow, heifer, bull, bullock, ox, or calf.

3. That whenever the mayor or other principal officer of any corporation, r the justices acting in and for the petty sessional division of any county, r district in the nature of a county, within England or Wales, and the provost other principal magistrate of any burgh or town, or the justices of any unty within Scotland, shall have reason to apprehend the approach of the id disease to the district over which his or their jurisdiction extends, it shall lawful for such mayor or other principal officer, and for such justices in ngland or Wales, and for such provost or other principal officer, and for

such justices in Scotland, if he or they shall think fit, from time to time to appoint one or more veterinary surgeon or surgeons, or other person or persons duly qualified, to be an inspector or inspectors, for the purpose of carrying into effect, within the district for which he or they shall have been appointed, the rules and regulations made by the said recited orders and by this order. And the same authority may, from time to time, revoke such appointment.

4. The powers of every inspector appointed under any of the said recited orders or this order, shall extend to any fair or market held within his district, and to every other place within such district, in which animals, as defined in this order, may be found.

5. Every such inspector shall have power within his district to order and direct that any animal which he suspects to be labouring under such disease shall be kept separate and apart from every other animal which appears to be free from such disease. And every person having the charge of any animals shall obey every such order or direction given by any such inspector.

6. Every such inspector shall have power within his district to seize and slaughter, or cause to be slaughtered, and to cause to be buried in any convenient place, any animal labouring under such disease.

7. Every such inspector shall have power within his district to cause to be disinfected, or, if necessary, destroyed, any fodder or manure which he deems likely to propagate the said disease; and every person within such district, upon whose premises any such fodder or manure shall be found, shall obey any order or direction given by such inspector for that purpose.

8. That it shall not be lawful to send or bring to any fair or market, or to send or carry by any railway, or by any ship or vessel coastwise, or to place upon, or to drive along, any highway or the sides thereof, any animal labouring under such disease.

9. Every person offending against this order shall for every such offence forfeit any sum not exceeding 20*l.* which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) ARTHUR HELPS.

VI.—September 22.

AT the Council Chamber, Whitehall, the 22nd day of September, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—LORD PRESIDENT, DUKE OF SOMERSET, EARL OF CLARENDON, EARL DE GRAY AND RIPON, Mr. Secretary CARDWELL, Mr. H. A. BRUCE.

Whereas by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, chapter 107, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders amongst sheep, cattle, and other animals," and which has since been from time to time continued by divers subsequent Acts, and lastly by an Act passed in the Session of the 28th and 29th years of the reign of Her present Majesty, chapter 119, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time, to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of the said Act, are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding wenty pounds, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder now prevails among the cattle of Great Britain, which is generally designated the "Cattle Plague," and nay be recognised by the following symptoms:—

"Great depression of the vital powers, frequent shivering, staggering gait, old extremities, quick and short breathing, drooping head, reddened eyes, with discharge from them, and also from the nostrils, of a mucous nature, raw ooking places on the inner side of the lips and roof of the mouth, diarrhœa or lysenteric purging:"

And whereas several orders, dated respectively the 24th of July, the 11th, 8th, and 26th of August, 1865, have been made under the authority of the aid Acts by the Lords of Her Majesty's Privy Council, with a view to check he spreading of the said disorder:

And whereas it is expedient to consolidate and amend the said orders:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by irtue of, and in exercise of the powers given by the said Act, so continued as oresaid, order as follows:—

1. This order shall extend to all parts of Great Britain.

2. The said orders dated respectively the 24th of July, the 11th, 18th, and th of August, 1865, are revoked, with the exception of so much of the said

order of the 24th of July, 1865, as empowers the clerk of Her Majesty's Privy Council to appoint inspectors within the limits of the Metropolitan Police District, provided that such revocation shall not affect any appointment made, or any act done, or penalty recoverable, under any order hereby revoked.

3. In this order the word "animal" shall mean any cow, heifer, bull, bullock, ox, calf, sheep, lamb, goat, or swine; and the word "inspector" shall include any inspector appointed under this order, or under any of the said revoked orders.

4. Whenever the local authority, as hereinafter defined, shall be satisfied of the existence of the said disorder in, or have reason to apprehend its approach to, the district over which his or their jurisdiction extends, it shall be lawful for such local authority, if he or they shall think fit, from time to time to appoint one or more veterinary surgeon or surgeons, or other duly qualified person or persons, to be an inspector or inspectors, for the purpose of carrying into effect the rules and regulations made by this order, within the district for which he or they shall have been appointed. And the same authority may, from time to time, revoke such appointment.

5. Subject to the powers herein reserved to the clerk of Her Majesty's Privy Council, the local authority within the city of London, and the liberties thereof, shall be the Lord Mayor; in any municipal borough in England or Wales, the Mayor; in any petty sessional division in England or Wales (exclusive so far as relates to the jurisdiction of the inspector of so much of the said division as lies within the limits of a municipal borough for which an inspector has been appointed), the Justices acting in and for such petty sessional division. The local authority in any burgh or town in Scotland which is subject to the jurisdiction of a provost or other principal magistrate, shall be the Provost or such principal magistrate; and in any other place in Scotland not within the jurisdiction of such provost or other principal magistrate, the Justices of the county in sessions assembled.

6. Every inspector shall from time to time report to the local authority by which he is appointed the steps taken by him for carrying into effect the regulations prescribed by this order; and the local authorities shall certify, in such manner as may be directed by one of Her Majesty's Principal Secretaries of State, the number of days that such inspector has actually been engaged in the performance of his duty, and the number of miles travelled by him while thus engaged.

7. Every inspector shall furnish the Lords of the Council with such information in regard to the said disorder as their lordships may, from time to time, require.

8. Every person having in his possession, or under his custody, any animal labouring under the said disorder, shall forthwith give notice thereof to the inspector of the district within which such person resides, or if no inspector shall have been appointed for the district within which such person resides, then to the officers hereinafter named, according to the place of residence of the

person obliged to give notice—that is to say, within the Metropolitan Police District, to the said clerk of the Privy Council; within the city of London and the liberties thereof, to the Lord Mayor; within any borough, burgh, or town subject to the jurisdiction of a mayor, provost, or other principal magistrate, to such mayor, provost, or other principal magistrate; elsewhere in England, to the clerk of the justices acting in and for the petty sessional division; and elsewhere in Scotland, to the clerk of the peace of the county.

9. Every inspector shall have power to enter upon and inspect any premises or place in which any animal or animals may be found within the district for which he is appointed, and to examine and inspect, whenever and wherever he may deem it necessary, any animal within such district.

10. Every inspector shall have power within his district to seize and slaughter, or cause to be seized and slaughtered, and to be buried, as hereinafter directed, in any convenient place, any animal labouring under the said disorder.

11. Every inspector shall have power within his district to cause to be cleansed and disinfected in any manner which he may think proper any premises in which animals labouring under the said disorder have been, or may be, and to cause to be disinfected, and, if necessary, destroyed, any fodder, manure, or refuse matter which he may deem likely to propagate the said disorder. And every owner or occupier of such premises shall obey any order given by such inspector for that purpose.

12. Every inspector shall have power within his district to direct that any animal which he suspects to be labouring under the said disorder shall be kept separate from animals free from the said disorder. And every person having in his possession or under his custody such animal shall obey any order given by such inspector for that purpose.

13. Every person having in his possession or under his custody any animal labouring under the said disorder shall, as far as practicable, keep such animal separate from all other animals, and shall not, if the animal be within a district for which an inspector has been appointed, remove the same from his land or premises, without the licence of the inspector.

14. No person shall send or bring to any fair or market, or expose for sale, or send or carry by any railway, or by any ship or vessel coastwise, or place upon, or drive along, any highway or the sides thereof, any animal labouring under the said disorder.

15. No person in any district for which an inspector has been appointed shall, without the licence of the inspector, send or bring to or from market, or remove from his land or premises, any animal which has been in the same shed or stable, or has been in the same herd or flock, or has been in contact, with any animal labouring under the said disorder.

16. No person shall place or keep any animal labouring under the said disorder in any common or unenclosed land, or, if the animal be in a district for which an inspector has been appointed, in any field or pasture, where, in

the judgment of the inspector, such animal may be likely to propagate the said disorder.

17. All animals having died of the said disorder, or having been slaughtered on account thereof, shall be buried with their skins, and with a sufficient quantity of quick-lime, or other disinfectant, as soon as practicable, and shall be covered with at least five feet of earth, or shall, in districts for which an inspector has been appointed, with the consent of the owner, be otherwise disposed of in manner directed by the inspector.

18. During the continuance of the "Cattle Plague" within the said city of London, or that part of the Metropolitan Police District which is under the jurisdiction of the Metropolitan Board of Works, no animal shall be brought or sent to the Metropolitan Cattle Market, or any other market within the said city, or the said part of the Metropolitan Police District, except for the purpose of being there sold for immediate slaughtering; and every such animal, as soon as sold, shall be marked for slaughter, in the manner in which cattle are ordinarily marked for slaughter in the Metropolitan Cattle Market.

19. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, that it is expedient that animals as hereinbefore defined, or some specified description thereof, shall be excluded from any specified market or fair within that jurisdiction, for a time to be specified in such notice, it is hereby ordered, that after the publication of such notice it shall not be lawful for any person to bring or send such animals or description thereof into such market or fair; provided always, that this clause of this order shall not, unless renewed by a further order, be in force after the expiration of three calendar months from the date of this order.

20. Every person offending against this order shall, in pursuance of the said Act, for every such offence forfeit any sum not exceeding twenty pounds which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) Arthur Helps.

VII.—September 29.

At the Council Chamber, Whitehall, the 29th day of September, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—Duke of Somerset, Mr. Secretary Cardwell.

Whereas by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," and which has since been from time to time continued by divers subsequent Acts, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time, to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat skins, hides, horns, hoofs, or other parts of any animals; and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid, in any such order or orders contained, shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the said Act shall for each and every offence forfeit and pay any sum not exceeding twenty pounds, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder has lately appeared, and now prevails, among cattle within that part of the United Kingdom called Great Britain, which is generally designated as the "Cattle Plague:"

And whereas it was expedient to take measures for preventing such disorder from extending to that part of the United Kingdom called Ireland; and whereas, for such purpose, orders were duly made in pursuance of the authority of the said Acts by the Lords of Her Majesty's Most Honourable Privy Council, dated 25th August and 7th and 13th September, 1865; and whereas, by such orders, the removal to any port or place, in that part of the United Kingdom called Ireland, from any port or place in that part of the United Kingdom called Great Britain, of any cow, heifer, bull, bullock, ox, or calf, and, with certain exceptions, of the skins, hides, horns, hoofs, or other parts of any of those animals, was prohibited:

And whereas there is reason to believe that the said disorder has made its appearance among sheep and lambs:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, in exercise of the powers given by the said recited Act, and by the several Acts continuing the same as aforesaid, order as follows:—

That it shall not be lawful for any person to remove any sheep or lamb, or the skin, or any other part of any sheep or lamb, from any port or place within that part of the United Kingdom called Great Britain, to any port or place within that part of the United Kingdom called Ireland: provided that this order shall not extend to skins brought into Great Britain from India, South America, or Australia, and afterwards removed from Great Britain to Ireland:

And the Lords of Her Majesty's Treasury are to give such directions herein as may be necessary to ensure due obedience to this order.

(Signed) ARTHUR HELPS.

VIII.—November 23.

AT the Council Chamber, Whitehall, the 23rd day of November, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—LORD PRIVY SEAL, DUKE OF SOMERSET, EARL RUSSELL, SIR GEORGE GREY, MR. MILNER GIBSON, MR. BRUCE.

Whereas by an Act passed in the session of the eleventh and twelfth years of Her present Majesty's reign, chapter one hundred and seven, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next session of Parliament, the spreading of contagious or infectious disorders amongst sheep, cattle, and other animals," which Act has since been from time to time continued by divers subsequent Acts, and lastly by an Act passed in the session of the twenty-eighth and twenty-ninth years of the reign of Her present Majesty, chapter one hundred and nineteen, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such Order or Orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animal dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of the said Act, are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the same shall for each and every offence forfeit and pay any sum not exceeding twenty pounds, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder now prevails among the cattle of Great Britain, which is generally designated the "Cattle Plague," and may be recognised by the following symptoms:

"Great depression of the vital powers, frequent shiverings, staggering gait, cold extremities, quick and short breathing, drooping head, reddened eyes, with a discharge from them, and also from the nostrils, of a mucous nature, raw looking places on the inner side of the lips and roof of the mouth, diarrhœa or dysenteric purging:"

And whereas several orders, dated respectively the 24th of July, the 11th, 18th, and 26th of August, the 22nd of September, and the 31st of October, 1865, have been made under the authority of the said Acts by the Lords of Her Majesty's Privy Council, with a view to check the spreading of the said disorder:

And whereas it is expedient to consolidate and amend the said orders, and to make further provisions with a view to check the spreading of the said disorder:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue of and in exercise of the powers given by the said Act, so continued as aforesaid, order as follows:

1. This order shall extend to all parts of Great Britain.

2. The said orders, dated respectively the 24th of July, the 11th, 18th, and 26th of August, the 22nd of September, and the 31st of October, 1865, are revoked, with the exception of so much of the said order of the 24th of July, 1865, as empowers the Clerk of Her Majesty's Privy Council to appoint inspectors within the limits of the metropolitan police district, provided that such revocation shall not affect any appointment made, or any notice given, or any act done, or penalty recoverable, under any order hereby revoked.

3. In this order the word "animal" shall mean any cow, heifer, bull, bullock, ox, calf, sheep, lamb, goat, or swine; and the word "inspector" shall include any inspector appointed or to be appointed as aforesaid by the said Clerk of Her Majesty's Privy Council, or appointed under this order, or under any of the said revoked orders.

4. Whenever the local authority, as hereinafter defined, shall be satisfied of the existence of the said disorder in, or have reason to apprehend its approach to, the district over which his or their jurisdiction extends, it shall be lawful for such local authority, if he or they shall think fit, from time to time to appoint one or more veterinary surgeon or surgeons, or other duly qualified person or persons to be an inspector or inspectors, for the purpose of carrying into effect the rules and regulations made by this order, within the district for which he or they shall have been appointed. And the same authority may, from time to time, revoke such appointment.

5. Subject to the powers herein reserved to the Clerk of Her Majesty's Privy Council, the local authority within the City of London, and the liberties thereof, shall be the Lord Mayor; in any municipal borough in England or Wales, the Mayor; in any Petty Sessional Division in England or Wales (exclusive, so far as relates to the jurisdiction of the inspector, of so much of the said division as lies within the limits of a municipal borough for which an inspector has been appointed), the Justices acting in and for such Petty Sessional Division. The local authority in any burgh or town in Scotland which is subject to the jurisdiction of a Provost or other principal Magistrate, shall be the Provost or such principal Magistrate; and, in any other place in

Scotland not within the jurisdiction of such Provost or other principal Magistrate, the Justices of the County in Sessions assembled.

6. Every inspector shall from time to time report to the local authority by which he is appointed the steps taken by him for carrying into effect the regulations prescribed by this order : and the local authority shall certify, in such manner as may be directed by one of her Majesty's Principal Secretaries of State, the number of days that such inspector has actually been engaged in the performance of his duty, and the number of miles travelled by him while so engaged.

7. Every inspector shall furnish the Lords of the Council with such information in regard to the said disorder as their Lordships may, from time to time, require.

8. Every person having in his possession, or under his custody, any animal labouring under the said disorder, shall forthwith give notice thereof to the inspector of the district within which such animal may be, or if no inspector shall have been appointed for such district then to the Officers hereinafter named, according to the place where such animal may be ; that is to say, within the Metropolitan Police District, to the said Clerk of the Privy Council ; within the City of London and the liberties thereof, to the Lord Mayor ; within any other borough, burgh, or town, subject to the jurisdiction of a Mayor, Provost, or other principal Magistrate, to such Mayor, Provost, or other principal Magistrate ; elsewhere in England, to the Clerk of the Justices acting in and for the Petty Sessional Division ; and elsewhere in Scotland, to the Clerk of the Peace of the county.

9. Every inspector shall have power, within the district for which he is appointed, to enter upon and inspect any premises or place in which any animal or animals which he suspects to be labouring under the said disorder may be found, and to examine and inspect, whenever and wherever he may deem it necessary, any animal which he suspects to be labouring under the said disorder within such district.

10. Every inspector shall have power within his district to cause to be cleansed and disinfected, in any manner which he may think proper, any premises in which animals labouring under the said disorder have been, or may be, and to cause to be disinfected, and if necessary destroyed, any fodder, manure, or refuse matter, which he may deem likely to propagate the said disorder. And every owner or occupier of such premises shall obey any order given by such inspector for that purpose.

11. Every person having in his possession, or under his custody, any animal labouring under the said disorder, shall keep such animal separate from all other animals, and no person shall send or bring to any fair or market, or expose for sale, or send or carry by any railway, or by any ship or vessel coastwise, or place upon, or drive along, any highway or the sides thereof, any such animal.

12. No person having in his possession or under his custody any animal labouring under the said disorder, or which has been in the same shed or stable or in the same herd or flock, or in contact with any animal labouring under the said disorder, shall remove such animal alive from his land or premises without the licence of an inspector, or if no inspector has been appointed for the district within which such animal may be, without the licence of a Justice of the Peace, acting in and for the jurisdiction within which such animal may be; provided that such licence shall be in writing, and shall only permit the removal of such animal to some place where it can be conveniently kept apart from all other animals until such inspector or Justice is satisfied that there is no reasonable probability of such animal propagating the said disorder.

13. No person shall place or keep any animal labouring under the said disorder in any common or unenclosed land, or, if the animal be in a district for which an inspector has been appointed, in any field or pasture, where, in the judgment of the inspector, such animal may be likely to propagate the said disorder.

14. Every inspector shall have power within his district to direct that any animal labouring under the said disorder, or which he suspects to be labouring under the said disorder, shall be kept separate from animals free from the said disorder. And every person having such animal in his possession or under his custody shall obey any direction given by such inspector for that purpose. And where the person having such animal in his possession or under his custody shall disobey such direction given by such inspector, then and in such case, and such case only, shall such inspector have power to seize and slaughter, or to cause to be seized and slaughtered, such animal.

15. All animals having died of the said disorder, or having been slaughtered on account thereof, shall be buried as soon as practicable in any convenient place, with their skins, and with a sufficient quantity of quicklime or other disinfectant, and shall be covered with at least five feet of earth, or shall, in districts for which an inspector has been appointed, be otherwise disposed of, with the consent of the owner, in manner directed by the inspector, and the inspector shall have power to cause the carcase to be disinfected when necessary previous to the burial or other disposal thereof.

16. Whenever any local authority, as hereinbefore defined, declares, by notice published in any newspaper circulating within his or their jurisdiction, that it is expedient for a time to be specified in such notice to prevent the removal of animals as hereinbefore defined, or some specified description thereof, either absolutely, or except under such conditions as such local authority shall think fit to impose, with a view to prevent the spreading of the said disorder, to any market or fair, or to any place whatever within his or their jurisdiction for the purpose of exhibition or sale, then, in such case, and after the publication of such notice, it shall not be lawful for any person to bring or send any such animal, or description thereof, except in accordance with such conditions as aforesaid, into such market or fair, or to any place within

such jurisdiction, for the purpose of exhibition or sale, or to receive, exhibit, buy, or sell any such animals so brought or sent.

17. Where the removal of animals, or any specified description thereof, to any market or fair or elsewhere for the purpose of exhibition or sale, has been or shall be prohibited, absolutely or conditionally, within the jurisdiction of any local authority in pursuance of any of the powers conferred by this or any of the said recited orders, and complaint is made by such local authority to one of her Majesty's principal Secretaries of State that the local authority for some adjoining or neighbouring district neglects or refuses to publish a notice with a view to a similar prohibition within the jurisdiction of such last-mentioned authority, and that, in consequence of such neglect or refusal, there is reason to apprehend the spreading of the said disorder, then in such case it shall be lawful for such Secretary of State, and he is hereby empowered, to publish such notice in any newspaper circulating within the jurisdiction of such last-mentioned local authority, and such notice so published by the Secretary of State shall have the same effect as if it had been published by the local authority so neglecting or refusing as aforesaid; provided that nothing contained in this or the preceding clause of this order shall be held to prohibit any person from exhibiting or selling on his own land or premises any animal belonging to him which has been on such land or premises for not less than fourteen days previous to such sale.

18. Whenever any local-authority, as hereinbefore defined, declares by notice published in any newspaper circulating within his or their jurisdiction, and also by notice published in some newspaper or newspapers circulating within the county or counties bordering upon the county within which the jurisdiction of such local authority is situate, that it is expedient, for a time to be specified in such notice, that animals, as hereinbefore defined, or some specified description thereof, shall not, either absolutely or except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be brought from any other part of Great Britain into any place within his or their jurisdiction, it shall not be lawful for any person to bring or send any such animal or description thereof except in accordance with such conditions as aforesaid, from any place in Great Britain beyond such jurisdiction into any place within such jurisdiction; and the copy of any such notice shall be sent forthwith by the local authority by whom it is made to the Clerk of Her Majesty's Privy Council, and shall be published by him in the *London Gazette*: Provided always, that nothing contained in this clause of this order shall make it unlawful for any person to send or carry any such animals by railway through such jurisdiction; and provided also, that nothing contained in this clause of this order shall make it unlawful for any person to bring or send, with the licence of any two justices acting in, and for the jurisdiction to which such notice applies, any such animals from any land or premises in his own occupation, and beyond such jurisdiction to any other land or premises in his own occupation within such jurisdiction.

19. Any such local authority, or any of Her Majesty's Principal Secretaries of State, may, from time to time, if he or they think fit, renew, revoke, or modify all or any part of any notice published or to be published by them or him under the powers given under this or the said revoked orders, either absolutely or under such conditions as to such local authority or to such Secretary of State may seem proper, by a further notice to be published in the same manner as such notice is required to be published.

20. During the continuance of the "Cattle Plague" within the said City of London, or the Metropolitan Police District, no person shall bring or send, or cause to be brought or sent, any cow, heifer, bull, bullock, ox, or calf to the Metropolitan Cattle Market, except for the purpose of being there sold for immediate slaughtering; and every such animal so brought or sent shall, before being allowed to leave the said market—and although such animal may not have been sold—be marked in the manner in which cattle are ordinarily marked for slaughter in the said market, videlicet, by clipping the hair off the end of the tail. And the officers of the said market shall cause such mark to be duly made. And no person shall buy or sell, or cause to be bought or sold, any such animal in the said market, except for immediate slaughtering; and every person buying any such animal in any such market shall slaughter or cause the same to be slaughtered in all cases within seven days of such purchase, and, if such animal be removed beyond the limits of the Metropolitan Police District, within forty-eight hours after such removal.

VIII.—December 16.

At the Council Chamber, Whitehall, the 16th day of December, 1865, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—Lord President, Duke of Somerset, Sir George Grey, Bart., Mr. Milner Gibson.

Whereas, by an Act passed in the session of the eleventh and twelfth years of Her present Majesty's reign, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," which Act has since been from time to time continued by divers subsequent Acts, and lastly by an Act passed in the session of the twenty-eighth and twenty-ninth years of her present Majesty, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained, shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the same shall for each and every offence forfeit and pay any sum not exceeding twenty pounds, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder now prevails among cattle within that part of the United Kingdom called Great Britain, which disorder is generally designated as the "Cattle Plague:"

And whereas with a view to check the spreading of the said disorder, an order dated the 23rd of November, 1865, has been made under the authority of the said Acts by the Lords of Her Majesty's Privy Council, consolidating and amending certain orders previously made for that purpose.

And whereas it is expedient to alter and amend the said order of the 23rd of November, 1865:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, in exercise of the powers given by the said Act, so continued as aforesaid, order as follows:

1. So much of the said order, dated the 23rd of November, 1865, as defines the local authority in Great Britain, is hereby revoked.

2. Subject to the powers reserved by the order of the 23rd of November to the Clerk of Her Majesty's Privy Council, the local authority within the City of London, and the liberties thereof, shall be the Lord Mayor; in every borough in England or Wales which is within the provisions of the Municipal Corporations Act, the Mayor; in every county, riding, or division of a county or liberty, having a separate Court of Quarter Sessions of the Peace in England or Wales, the Justices of the Peace for the said county, riding, or division of a county, or liberty, in General or Quarter Sessions assembled: Provided that no county of a city, or county of a town, or borough, which is within the provisions of the Municipal Corporations Act, shall be deemed for the purposes of this order part of a county, riding, division, or liberty. The local authority in every burgh or town in Scotland having a Town Council shall be the Provost or other principal Magistrate; and, in any other place in Scotland, the Justices of the County in Sessions assembled.

3. All appointments made, notices given, and other acts done by any local authority under and by virtue of the said order of the 23rd of November, 1865, or the orders thereby revoked, shall be valid and effectual until altered, varied, or revoked by the local authority hereby constituted, and such local authority shall have and exercise all the powers given by the said order of the 23rd of November, 1865, to the local authority therein described.

4. Whenever any local authority declares, by notice published in any

newspaper circulating within its jurisdiction, that it is expedient for a time to be specified in such notice, that no cow, heifer, bull, bullock, ox, or calf shall, except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be removed from any particular part of the jurisdiction of such local authority to any other part of such jurisdiction; or from any place or places within such jurisdiction, to be specified in such notice, to any other such place or places also to be so specified: or from place to place generally within such jurisdiction, or within any specified part thereof; then it shall not be lawful for any person to remove any such animal in contravention of such notice: provided always, that nothing contained in this clause of this order shall make it unlawful for any person to send or carry any such animal by railway through or out of such jurisdiction, or to send or carry any such animal if brought by sea from any place out of Great Britain into such jurisdiction, to the nearest convenient railway station, for the purpose of carrying it through or out of such jurisdiction.

5. Any local authority may from time to time renew, revoke, alter, or vary all or any part of any notice published or to be published by him or them, or any previous local authority within his or their jurisdiction, under the powers given under this or any former orders, either absolutely or under such conditions as to such local authority may seem proper, by a further notice to be published in the same manner as such notice is required to be published.

6. The notice required by section 8 of the order of the 23rd of November, 1865, to be given in England to the Clerk of the Justices acting in and for a petty sessional division of a county, shall hereafter be given to the Clerk of the Peace of such county.

7. This order shall be in force from the 3rd day of January next until the 1st day of March next, and no longer, unless continued by some further order.

8. Every person offending against this order shall, in pursuance of the said Act, for every such offence forfeit any sum not exceeding twenty pounds, which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) Arthur Helps.

For the Orders in Council issued in January, 1866, see the Appendix.

FIRST REPORT OF HER MAJESTY'S COMMISSIONERS.

COMMISSION.

VICTORIA R.

VICTORIA, by the grace of God of the United Kingdom of Great Britain and Ireland Queen, Defender of the Faith: To Our right trusty and right well-beloved Cousin and Councillor John Poyntz Earl Spencer, Knight of Our Most Noble Order of the Garter, Our trusty and well-beloved Robert Arthur Talbot Gascoyne Cecil, Esquire, (commonly called Viscount Cranborne,) Our right trusty and well-beloved Councillor Robert Lowe, Our trusty and well-beloved Lyon Playfair, Esquire, Companion of Our Most Honourable Order of the Bath, Clare Sewell Read, Esquire, Henry Bence Jones, Esquire, Doctor of Medicine, Richard Quain, Esquire, Doctor of Medicine, Edmund Alexander Parkes, Esquire, Doctor of Medicine, John Robinson M'Clean, Esquire, Thomas Wormald, Esquire, Robert Ceely, Esquire, and Charles Spooner, Esquire, greeting:

Whereas a contagious or infectious disorder, which is generally designated the Cattle Plague, now prevails among the cattle of Great Britain: And whereas We have deemed it expedient that a Commission should issue fully to investigate the origin and nature of the said disorder, and to ascertain, as far as possible, the mode of treatment best adapted for the cure of the affected animals, and the regulations which may with the greatest advantage be made with a view to prevent the spreading of the said disorder, and to avert any future outbreak of it:

Now know ye, that We, reposing great trust and confidence in your knowledge and ability, have authorised and appointed and by these presents authorise and appoint you the said John Poyntz Earl Spencer, Robert Arthur Talbot Gascoyne Cecil (commonly called Viscount Cranborne), Robert Lowe, Lyon Playfair, Clare Sewell Read, Henry Bence Jones, Richard Quain, Edmund Alexander Parkes, John Robinson M'Clean, Thomas Wormald, Robert Ceely, and Charles Spooner, to be Our Commissioners for the purposes aforesaid.

And for the better enabling you to carry these Our royal intentions into effect, We do hereby give and grant to you, or any three or more of you, full power to call before you such persons as you shall judge likely to afford you any information on the subject of this Our Commission, and to inquire of and concerning the premises by all other lawful ways and means whatsoever.

And We do by these presents will and ordain that this Our Commission shall continue in full force and virtue, and that you Our said Commissioners, or any three or more of you, may from time to time proceed in the execution thereof and of every matter and thing therein contained, although the same be not continued from time to time by adjournment.

And Our further will and pleasure is, that you Our said Commissioners, or any five or more of you, upon due inquiry into the premises, do report to Us in writing under your hands and seals your several proceedings under and by virtue of Our Commission, together with what you shall find touching or concerning the premises.

And We further ordain that you, or any five or more of you, may have liberty to report to Us your proceedings under this Commission from time to time, should you judge it expedient so to do.

And for your assistance in the due execution of this Our Commission, We have made choice of Our trusty and well-beloved Mountague Bernard, Esquire, to be Secretary to this Our Commission, whose services and assistance We require you to avail yourselves of from time to time as occasion may require.

Given at Our Court at Saint James's the twenty-ninth day of September, 1865, in the twenty-ninth year of Our reign.

By Her Majesty's Command,
(Signed) G. GREY.

FIRST REPORT

OF

THE COMMISSIONERS APPOINTED TO INQUIRE INTO THE ORIGIN AND NATURE, ETC., OF THE CATTLE PLAGUE.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

Terms of Commission.

Your Majesty was pleased, by your Commission dated the 29th day of September, 1865, to intrust to us the task of investigating the origin and nature of a disorder which now prevails among the cattle of Great Britain, and is generally designated the Cattle Plague, and of ascertaining as far as possible the mode of treatment best adapted for the cure of the affected animals, and the regulations which may with the greatest advantage be made with a view to prevent the spreading of the said disorder, and to avert any future outbreak of it. Your Majesty was at the same time pleased to ordain that we, or any five or more of us, might have liberty to report to you our proceedings under the Commission from time to time, should we judge it expedient to do so.

Leave to report specially.

The terms of the Commission therefore authorise us, if we think fit, to report specially to Your Majesty on any part of the subject committed to us, reserving other parts of it for further investigation. The nature of the calamity under which England and Scotland are at present suffering, and which may at any moment attack Ireland, the extensive growth of the disease, its destructive character, and the imperfect success which has hitherto attended all endeavours to arrest its progress, make it clearly our duty to take this course, and to lose no time in humbly presenting to Your Majesty such recommendations as, after careful consideration, we believe the emergency to require. We shall introduce them with a brief statement on the history of the disease and on its general character.

I.

Outbreak and spread of disease in England.

The disease, which is the subject of this inquiry, was first observed and recognised in Great Britain towards the close of the month of June. Two English cows had been purchased on the 19th June in the Metropolitan Cattle Market by a cowkeeper residing in Islington, in whose sheds they were when the symptoms of disease attracted, on the 27th, the notice of the veterinary surgeon in charge. Similar symptoms were observed on the 28th by the same surgeon in a cow belonging to a dairyman in Hackney, which had been purchased in the same place and on the same day. Two Dutch cows in a Lambeth shed, likewise bought in the market on the 19th, were attacked on the 24th. The malady broke out immediately afterwards in many London dairies, and spread with extreme rapidity, destroying great numbers of animals. The Islington cowkeeper lost her whole herd of 93; she afterwards bought more and lost them also, making 106 or 107 in all. An inspector who had charge of a great part of the north and north-east of London states that in his own district more than four-fifths have either died or been slaughtered, and the general average within the precincts of the Metropolis is probably at least as high. Very early in July it appeared in Norfolk; a little later in Suffolk and Shropshire; then in one county after another, and before the end of the month it had invaded Scotland. In all the earlier cases at least it seems to have been directly traceable to purchases made in the Metropolitan Market; but Norwich Hall and other country markets speedily became, in their respective districts, subordinate centres of infection. On the 14th October it had extended into 29 counties in England, 2 in Wales, and 16 in Scotland, and was still advancing.

The subjoined tabular statement, prepared by the Veterinary Department of the Privy Council Office from such official information as that department has received from inspectors throughout the country, has already appeared in the public papers:—

—	Attacked.			Total Cases reported from the Commencement of the Disease.				
	Week ending Oct. 14.	Week ending Oct. 21.	Week ending Oct. 28.	Attacked.	Killed.	Died.	Recovered.	Remaining.
1. Metropolitan Police District	158	194	158	5,773	2,557	2,529	202	485
2. South-Eastern Counties	225	154	205	3,284	1,169	1,667	197	251
3. South Midland Counties	73	94	230	833	373	282	42	136
4. Eastern Counties	141	183	335	3,081	1,051	1,482	161	387
5. South-Western Counties	17	11	3	116	51	45	7	13
6. West Midland Counties	31	9	31	214	74	112	4	24
7. North Midland Counties	8	32	18	109	54	41	6	8
8. North-Western Counties	28	39	42	176	55	75	6	40
9. Yorkshire	26	39	113	253	66	126	11	50
10. Northern Counties	47	86	34	472	212	201	24	35
11. Monmouthshire and Wales	43	60	38	180	51	110	4	14
12. Scotland	257	828	666	3,182	1,153	1,241	184	604
Total	1,054	1,729	1,873	17,673	6,866	7,912	848	2,047

It must be remarked, however, that such statements as this cannot be accepted as accurate accounts—which, indeed, they do not profess to be—of the real state and progress of the disease. They represent such cases only as the several inspectors have been able to detect since they were respectively appointed. But information reaches the inspector indirectly, by accident, or by common report; and a butcher, jobber, dairyman, or farmer has strong motives for not disclosing to the inspector anything that he can easily hide. We were told by a London cowkeeper that, of 41 cows which died or were slaughtered on his premises, the inspector got only the knacker's receipt for the 11 that actually died of the disease. It must, therefore, we fear, be assumed that the cases reported form but a small proportion of those which have actually occurred; and it would be unsafe to draw from them any inference as to the amount of loss actually caused by the Plague.

In the Netherlands.

Meanwhile, from the same general centre, the Metropolitan Market, it appears to have crossed the sea to Holland with some Dutch oxen which had been shipped from Rotterdam to London, had been exposed during three successive market days, and, not finding a sale at an adequate profit, had been re-shipped from London to Rotterdam. The disease broke out among them soon after their return, when they were pasturing at Kethel, near Schiedam, in a long strip of meadow, on which other strips abutted, each occupied by stock; it spread at once in many directions, and soon overran the whole province of South Holland, and thence, we believe, it has been from time to time re-imported into this country. The measures adopted in the Netherlands seem to have been at the outset less stringent than was desirable; too much discretion was left to the local authorities; but the provinces of North Holland, Utrecht, and Guelderland have, by strictly guarding their respective frontiers, protected themselves in a great measure from the contagion.

France and Belgium.

In both France and Belgium importation from England has been prohibited, and stringent and minute regulations have been issued by the Government of each country with a view to extinguish the disease wherever it might break out. These measures appear to have been successful. Only a few isolated and somewhat doubtful cases have been hitherto reported from each of these countries.

Supposed source of the outbreak in England.

Twenty-three days at least before the first outbreak in London, a parcel of Russian bullocks, the first, it is asserted, that were ever brought direct from that country to England,* were sold in the Metropolitan Market by the importer, a London cattle-salesman. They had been shipped at Revel and landed at Hull; part of them had there been sold, and sent to various places in the north of England, and the rest despatched to London. The southern provinces of Russia are, if not the birth-place, the constant home of a disease which, as we shall hereafter show, is identical with the Cattle Plague, and to this cargo the introduction of the Plague into England has been often and confidently ascribed. Some obscurity hangs over the earlier history of the transaction. That the province of Esthonia, where the cattle were contracted for, and where the bulk of them, at least, were collected, was at and before the date of the shipment free from the Plague is certified by authority which we should be reluctant, and have indeed no ground, to question. But it is alleged by the importer's agent, who procured and shipped the animals and had charge of them on the voyage, that a few (13 out of 321) were not Esthonian, but part of a larger lot brought in vans from the neighbourhood of St. Petersburg to make up the number required; and he further alleges that out of this lot two were ill at Revel with a disease which he believes to have been the Cattle Plague. This part of his story is flatly contradicted by his principal, as his assertion that the animals were not examined on landing is by the Customs' Inspector at Hull.† It must be added that he does not know the disease otherwise than by description—that of the 321 imported none appear to have shown any signs of disease, except one, which was ill on the voyage, but looked well when it reached London—and that no animal is proved to have contracted the disease in the Metropolitan Market from the 1st

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* A copy of an entry from the books of the London Custom House has been sent to us, from which it would appear that 20 Russian oxen were landed in London from St. Petersburg on the 4th July, 1860. The point is of no importance.

† It is proper to add that we have been furnished with the original certificate, dated the 29th of May, and signed by the two veterinary surgeons who were charged with the examination of the cargo, that they had examined it, and that it was sound and free from disease, as well as with a subsequent declaration by them to the same effect.

(the date of its supposed introduction) to the 19th (that of its supposed transmission to the Islington, Lambeth, and Hackney cows), a negative circumstance of no great weight, since an early case of the malady may easily have been mistaken for one of pleuro-pneumonia, but not to be left out of consideration. The facts then, though by no means inconsistent with the theory which attributes the appearance of the Plague in England to the Revel cargo, fall far short of establishing that theory, unless we assume that the event cannot possibly be accounted for in any other way. Further inquiry may throw new light on the question. At present we are not able to pronounce a decided opinion on it; nor, for the practical conclusions which we are about to offer, is it material on which side the truth lies.

Another suggested explanation.

Another explanation has been suggested in the following extract of a letter from Her Majesty's Consul-General at Hamburg:—

"Mr. Schrader, an intelligent veterinary surgeon, who is specially employed by the Hamburg Government to examine cattle and sheep shipped for foreign ports, has informed me he thinks it most probable that the murrain has been introduced into England by importation from Holland. He states that in the course of the last spring a considerable number of Hungarian cattle were conveyed from Vienna into Holland through Germany by land carriage and river navigation; that at the same time the Rinderpest had broken out in the neighbourhood of Vienna, particularly in the village of Florisdorf; and that in the month of May a number of cattle at or near Utrecht in Holland had been attacked by it. Although, therefore, the Murrain broke out with much greater violence at a later period of the year, it would be quite possible that it passed from the Dutch ports into England so early as the month of May last. With respect to the rumour of diseased cattle having been imported into England from the Russian port of Revel in Esthonia, either directly or by way of Lubeck, no credit is attached to it here, and indeed the great distance of Revel both from Great Britain and from the cattle districts in Southern Russia, seems to render it unlikely that diseased cattle should have reached England from that port without any observation."

One fact mentioned in this letter, and which has also been

Importations from Hungary and Galicia.

elicited in evidence, deserves particular attention, since it is of more than historical importance. Hungarian and Galician cattle now undoubtedly come in considerable numbers to the English market. "Large quantities," says one dealer, "are sent every week." Hungary and Galicia, from their neighbourhood to the steppe country of Russia in Europe, are often attacked by the Plague, and Hungary at least has suffered severely from it during the present year. The completion of the two great lines of railway which, traversing central and southern Germany, now connect Hamburg and Rotterdam with both Vienna and Lemberg, have opened to us these new supplies. Respecting the average duration of the transit we have no precise information, nor do we at present know how far it may be abridged in particular cases, nor by what regulations it is guarded at the beginning or end of the journey. We may have occasion to recur to this point hereafter; at present we advert to it only as suggesting a possible solution of the question how the Cattle Plague reached England.

II.

The disease contagious. General character of the contagion.

That the disease in question is contagious, that the contagion is extraordinarily swift and subtle, and that it is most destructive in its effects, there can be no doubt whatever. The manner in which it has spread, travelling perceptibly, for the most part, in the track of animals brought from some centre of infection, and establishing a new centre wherever it has been suffered to effect a lodgment—the very difficulty that has been often found, even where the fact of infection was certain, in tracing the exact means by which the infection was conveyed—the havoc it has made in open pastures not less than in the London cowsheds, and against which fresh air, wholesome food, and careful tending seem to have afforded no defence, would be quite enough to establish these conclusions, even if no light were thrown upon them by past history, or by the experience of other countries. Of the witnesses, indeed, whom we have examined, even those who believe it to have been spontaneously generated here acknowledge that it is contagious, and (with hardly an exception) admit that it is new in England.

Identical with the *Rinderpest* or Steppe Murrain

But we see no reason to question the evidence which has been produced before us proving that it is the same disease as that which has been long known under the name of the *Rinderpest* (Cattle Plague), or Steppe Murrain. The symptoms during life, the results of post-mortem examination, and the whole train of general characteristics, are precisely the same, or varied only by such minute shades of difference as we might expect to find in different breeds and climates. A comparison of what we see with the full descriptions contained in foreign medical works leaves on this head no doubt at all; and no doubt is entertained by competent and trustworthy witnesses who have had and used opportunities of personal observation both here and abroad. The whole experience gained of it in countries where it is not, as here, a stranger—countries frequently infested by it, where its effects are perfectly well known, its nature has been carefully studied, and the strictest measures have been devised and are enforced by law to detect and extirpate it as often as it crosses the frontier—becomes, therefore, at once available for our guidance. These measures are wholly based on the view that the disease propagates itself by contagion, and by contagion alone, and the extreme stringency of them proves in the most forcible manner the virulence and activity of the evil which they are designed to keep at bay. They are measures indeed which never could be enforced, they involve sacrifices to which no people could be reasonably asked to submit, unless in the presence of a dreaded enemy, and under a sense of overwhelming necessity. The same view is, we believe, universally held among the eminent veterinarians of Germany, men of high education and intelligence, and it has recently been endorsed by the Congress of veterinary surgeons held at Vienna in August last, which was attended by members of the profession from almost every country in Europe.

Earlier Cattle Murrains in England.

This is not, however, the first time that this Plague has visited England. Fatal murrains among cattle, analogous to, if not identical with it, have at various times appeared here. In 1348-9, after the Black Death had produced great mortality among men, a grievous plague attacked cattle, which perished by thousands. A great rise in the price of food followed, notwithstanding an abundant harvest. The diseased cattle were slaughtered, and infected herds were as much as possible separated from those which were sound, while the herdsmen who attended the former were not allowed to come in contact with the latter. About a century later, in 1480, a second murrain of the same kind committed great devastation. There is no accurate account of the symptoms exhibited by cattle attacked during these murrains, and we are therefore unable to ascertain whether they were different from or identical with the present disease; but there is every reason to believe that the distemper which in 1715 made a brief inroad, but was promptly expelled, and which in 1745 renewed the attack and held its ground till 1757, was exactly the same as the present Plague. Of this we have proof in the descriptions extant of the symptoms then observed, and of the morbid appearances after death. In a paper communicated to the Royal Society in January, 1746, by Dr. Mortimer, he ascribes the origin of the murrain to two calves imported from Holland by a farmer living near Poplar, early in 1745. The spring and summer had been very wet, the autumn dry and cold, the early winter cold and damp. The disease communicated to the cows of this farmer spread through Essex, reached London, and was propagated in various directions from the metropolitan markets. It entered Berkshire, however, by two cows bought at a fair in Essex. Almost simultaneously with its appearance in London, a violent distemper broke out among the horned cattle of Argyllshire, sweeping off 6000 beasts; but there is no exact information as to the nature of the Scotch murrain. The disease for some time advanced in a manner which appeared to justify the Government in treating its attacks as mere local outbreaks, and it was nearly a year after its first appearance that the country became sufficiently aroused to use national measures for the repression of it. But by this time it had taken too deep root for these to be effective. A Commission for Middlesex was appointed on the 25th November, 1745. The Commission, with the short experience of 1715 to guide them, appointed various cowkeepers and butchers as inspectors of cattle, and instructed them:—

1. To inspect cowhouses and to separate sick from sound cows.

2. To see that all cowhouses and yards were kept thoroughly clean.

3. To kill all sick cows and calves, to slash their hides so as to render them useless, with several cuts from head to tail and round the body, and then to bury them in graves ten feet deep, with two bushels of unslacked lime to each cow.

4. To certify to the destruction of cows, for each of which the Treasury gave 40*s*.

5. To see that proper returns were made by cowkeepers as to their losses.

The disease having spread beyond Middlesex, an Act was passed and received the Royal Assent on the 13th February, 1746, empowering the Crown to issue, through the Privy Council, rules and directions in order to prevent the distemper spreading amongst horned cattle.

On the 12th March, 1746, an Order in Council was passed in which the incurable nature of the malady is set forth and the following regulations appear:—

1. Cowkeepers must shoot infected beasts, and bury them entire with slashed hides, four feet covered with lime. (The direction as to the use of lime was subsequently revoked.)

2. All hay and litter used by diseased animals must be burned. No herdsman who has attended a diseased beast is to go near a sound one without changing his clothes.

3. Infected sheds must be thoroughly washed all over, then disinfected with burning sulphur, &c., again repeatedly washed with vinegar and water, and not used for two months.

4. Convalescent animals are not to be mixed with sound ones for one month, and not then till they have been well curried and cleansed with vinegar and water.

5. Flesh and entrails of diseased cattle are not to be given as food to other animals.

6. No man whose herd is infected is to be allowed to drive any cattle, whether diseased or not, beyond the boundary of his farm. And even when disease has disappeared, his herd is to be held infected for a month.

7. Local authorities, such as churchwardens, overseers, constables, or cattle-inspectors, who may be appointed, are charged to see to the execution of this order. They are to report to each meeting of justices and make exact returns.

8. These local authorities are to persuade owners to divide up their herds into separate parts; they are not only to see to the burying of diseased cattle, but also the burial of all infected dung.

9. Cattle travelling on roads are to be stopped and examined.

10. Houses, buildings, or yards used for cattle, sound or diseased, are to be carefully kept clean.

11. Compensation for slaughtered cattle is to be paid at the rate of 40s. per head; for calves, 10*s*.

Towards the end of the year the Government found that the local authorities had not assisted them vigorously in the execution of the first order, and they issued a second to the effect that from the 27th December for three calendar months no person shall send to fairs or markets any cattle except for immediate slaughter, or "buy, sell, or expose to sale," any cattle except those which are ready for immediate slaughter. Nor is this privilege of selling fat cattle permitted to any one whose herd is infected. Therefore all beasts going to fairs or markets must be provided with passes from a justice, or, failing him, from other competent local authorities, given on the owner's oath that his cattle are and have been for a month free from the Plague.

No raw hides shall be sold or allowed to be transported without like passes, but hides and horns of diseased beasts must absolutely be destroyed, and a compensation of 10s. per hide is given.

A third Order in Council was issued, proscribing the district from the Humber and Trent, and not allowing cattle to be driven out of it northwards from the 19th December, 1747, to the following 27th March.

On the 13th February, 1747, an Act to amend and extend the powers of the previous Act was passed; and this was followed, up to 1757, by various continuing and enlarging statutes. In addition to the measures before specified, these statutes also provided that sales of cattle should only take place when the seller had had them in his possession for forty days; calves were not allowed to be sold, in order that they might be preserved for breeding purposes, and severe restrictions were put on the sale of the hides of diseased animals.

Various Orders were issued during the year 1747, stopping local fairs, and empowering local authorities to do so when they found it expedient.

The Plague, in consequence of these Orders, was extinguished where the local authorities acted with vigour, but lingered in other places, from whence it spread after a time as rapidly as ever. In consequence of this, in September, 1747, there is a new suspension of all fairs and markets and of all movements of cattle, except for slaughter, throughout the kingdom for three months. This was modified afterwards, sound lean cattle being allowed to be changed to clean pastures, and cows being allowed to go to bulls when both were sound.

The same result followed this new Order as its predecessors. The disease was extinguished in many counties, but lurked in others where the local authorities had been lax in looking after the execution of the Order. Hence in December, 1749, the Council admits its failure in putting down the disease, and now again prohibits all movement of cattle except for slaughter, and the place of slaughter must be within two miles of the spot where the cattle are on the 14th December, 1750.

The requirement that cattle should be slaughtered only within two miles of their stalls was found very grievous by London and Westminster, and the outcry raised against it by these influential places produced a revocation of it within a month of its issue.

"Unfortunately," says Mr. Youatt, in his well-known work, "the restrictions with regard to the sale or removal of cattle and communication between different districts were so frequently evaded, that it was either impossible or impolitic to exact the penalties." (Youatt, *Cattle, their Breeds and Diseases*, p. 391.). The system of compensation was carried on for some years until the Government found it produced serious frauds. Every animal that was ailing, or had diseases of any kind, was killed and charged to the Government as having died by the Plague, and in consequence of these frauds compensation was abandoned. One cause of the ill success of the repressive measures adopted is thus described in the words of Layard, who, writing even in 1757, says: "The disease, thank God, is considerably abated; and only breaks out now and then in such places where, for want of proper cleansing after the infection, or carelessness in burying the carcasses, the putrid *fomes* is still preserved, and is ready, at a proper constitution of the air, or upon being uncovered, to disperse such a quantity of effluvia, that all the cattle which have not had it will be liable to infection." (Layard, *The Distemper among Horned Cattle*, p. 20.)

For some time after the revocation of the Order of 1749, each county proscribed neighbouring infected counties, and refused to receive their cattle. The roads from one county to another were strictly guarded, and cattle, hides, carcasses, and tallow from any infected counties were carefully excluded. These measures, however, had but a very partial effect. Cheshire lost in the first half of 1757 and three months of the preceding year about 30,000 head of cattle, and many other counties in proportion. For the next two or three years this local war against the disease was allowed to be waged, the Government occasionally interfering when the magistrates permitted fairs in places likely to be injurious to neighbouring counties. It continued up to 1756 with considerable variations, the Plague being intense in some counties, milder in others, and absent from many, until it wore itself out. There is no accurate record within our knowledge of the mortality produced by it. In the third year of the attack 80,000 head were slaughtered under the Orders in Council, and a far larger number perished by the disease. During its course it must have destroyed several hundred thousand cattle.

The disease in countries bordering on Russia.

There was some dispute as to the means by which England received its infection in 1715 and 1745, but it is certain that the Plague was raging in different parts of western Europe at that time. Wherever during war Russian and Austrian parks of cattle followed the movements of armies, the Cattle Plague appeared, and spread gradually to the adjacent countries. France in this way received it at least half-a-dozen times in the last century.* From 1711 to 1714 foreign authors state that western Europe lost 1,500,000 head of cattle by the Plague; while from 1745 to 1748 (a period which includes three years of the great English attack) 3,000,000 are believed to have perished in western and central Europe. These figures are probably not exaggerated, considering the great losses sustained by particular states. Thus the Danish monarchy, in the four years from 1745 to 1749, lost 280,000 head, and Holland, in the three years beginning with 1769, lost 395,000 head. These disasters attracted the attention of Governments and scientific men; and the long peace which began in 1816 permitted the adoption of those careful and systematic measures of precaution which, in the countries bordering on Russia, have been maintained ever since with various modifications, and on the whole with considerable success. It was ascertained that Europe usually received the infection through Russian steppe cattle sent into Poland and Hungary. These cattle feed in vast numbers on the luxuriant herbage of the steppes in the Russian provinces watered by the lower part of the Dnieper and its tributaries. Large herds of them are annually driven to different parts of Russia, to Poland, Galicia, and Hungary, and often carry the seeds of disease in their train. In 1862 the number attacked by the plague in the Austrian dominions was 296,000, of which 152,000 died. In 1863 it again invaded and overran not only Galicia but the whole of the kingdom of Hungary and its dependencies, the Bukowina, Dalmatia, Carniola, Lower Austria, Moravia, and Styria. Fourteen per cent. of the cattle in these countries took the infection, and the average mortality, as stated in Schmidt's *Jahrbuch der Gesammten Medecin*, 1865 (p. 95), was as follows:—

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* Much interesting information on this part of the subject is contained in a memoir by M. Renault, President of the Veterinary School of Alfort, transmitted to the French Minister of Agriculture, and published in several French and English newspapers.

Hungary	65	per cent.
East Galicia	77	,,
Croatia and Slavonia	81·6	,,
Military Frontier	83	,,
Moravia	88	,,
Lower Austria	92	,,
West Galicia	94	,,
Bukowina and Styria	100	,,

It should be added, that the number attacked in the last two provinces was small.

III.

General characteristics of the disease as ascertained by experience.

Our present experience then, our past experience, and the experience of foreign countries, coincide so far as they respectively go; they identify the English Cattle Plague of 1865, the murrain of 1745, and the *Rinderpest* of eastern Europe, as the same disease, and they yield some clear and well ascertained results, which may be briefly stated as follows:

The Cattle Plague is, in the language of medicine, a specific disease, belonging to the class of contagious fevers. The contagious matter is subtle, volatile, prolific, in an unexampled degree. It is conveyed in a most virulent form in the excretions from the diseased animal. Any particle of those excretions may serve as a vehicle for it. We know not the limit of time within which it disengages itself from them, nor to what distance it may not be diffused. It may travel, we know, in the hide, horns, hoofs, and intestines of the dead animal; the offal, therefore, is highly dangerous. It lurks undeveloped in the system for a period about which some difference of opinion exists, which certainly is not less than five days, usually is seven or eight, but appears to be more prolonged in some cases. Towards the end of this period of incubation, but at what precise point we do not know, it becomes capable of diffusing itself by contagion. A diseased animal may therefore be infectious before it shows any signs of disease, or at all events before the malady betrays itself to any but a very close and very skilful observer. The proportion of cases in which it is fatal is extraordinarily large. No specific has been discovered which neutralises or expels the poison: judicious treatment may enable nature to resist till the virus has spent itself; injudicious treatment may have a contrary effect; but that is all. The practical conclusion, therefore, at which foreign physicians and foreign governments have arrived,—the conclusion that it is better always to kill a diseased animal, or a few diseased animals, where by so doing you can kill an isolated germ of disease, instead of suffering that germ to linger and fructify whilst you are attempting a cure, for the precarious prospect of an insignificant saving,—is justified by reason; it is also directly justified by experience, which shows that, whilst the Plague propagated from a single germ speedily becomes unmanageable, spreads from herd to herd, from province to province, and from country to country, multiplies in a continually increasing ratio, and exhausts itself only after ruinous havoc and a long course of time, it may be effectually eradicated by prompt and unsparing measures. The experience of Prussia is especially valuable in this respect. The Plague has often appeared, says Professor Gerlach, in the provinces bordering on the Russian Empire, in East Prussia, Posen, and Silesia, but it has never, since 1815, penetrated eastwards, even so far as Brandenburg. Lastly, we must add, it has not been found to give way before cold weather or rain. The reverse seems to be the case. It is worse, Professor Gerlach informs us, "in cold and wet weather, and better in warm and dry weather." "It spreads," says Mr. Ernes, "as fast in a cold as in a hot season." The murrain of 1745 broke out here in early spring, the temperature of the preceding year having been low; and it is stated to have raged most violently during the winters, and to have diminished in intensity with the advance of summer.

Immediate objects of the inquiry.

These conclusions, which are all that for our present purpose it is necessary to state, are far, of course, from exhausting all that is known upon the subject. Beyond what is known, however, there is a large field of inquiry which may be usefully explored. To observe carefully the premonitory and progressive symptoms of the disease under various conditions—to determine precisely the period of incubation, the effect of remedial and of preventive agencies, (including under the latter head disinfectants, therapeutical measures, and inoculation)—to ascertain within what range, and under what modifications, the poison may be communicated from a diseased cow to other animals of the same or different species—these are branches of investigation practically important, but which will take time. With a view to the thorough examination of them, we have obtained the assistance of men eminent in various departments of science, and we hope to be able to report on them hereafter. But we have now to deal with more pressing questions. Are the measures hitherto adopted to stifle the Plague at home, and stop its entrance from abroad, effectual for the purpose? If not, what other measures are likely to be effectual? To these questions, having early satisfied ourselves of the general character of the disease, we at once directed our attention; and the evidence which we have received has been chiefly taken with a view to them.

IV.

Preventive measures hitherto adopted.

The preventive measures hitherto adopted by Your Majesty's Government may be briefly stated.

Act 11 and 12 Vict. c. 107.

By an Act of Parliament, passed in 1848, and continued by several subsequent Acts to the present time, the Lords and others of Your Majesty's Privy Council, or any two or more of them, are authorised to make from time to time such Orders and Regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such Orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other part of any animals, or of hay, straw, fodder, or other articles likely to propagate infection; and also for the purpose of purifying any yard, stable, outhouse, or other place, or any waggons, carts, carriages, or other vehicles; and also for the purpose of directing how any animals dying in a diseased state, or any animals, parts of animals, or other things seized under the provisions of the Act are to be disposed of; and also for the purpose of causing notices to be given of the appearance of any disorder among sheep, cattle, or other animals, and to make any other Orders or Regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such Orders or Regulations; and it is enacted that all provisions for any of the purposes aforesaid in any such Orders contained shall have the like force and effect as if the same had been inserted in the Act; and that all persons offending against the Act shall for each and every offence forfeit and pay any sum not exceeding twenty pounds, or such smaller sum as the Council may in any case by such Order direct.

Orders in Council.

Under the powers conferred by this Act, several Orders in Council have been issued, dated respectively the 24th July (fourteen days after the first notice of the outbreak was given by Professor Simonds to the Privy Council Office), the 11th, 18th, and 26th of August, 1865, the substance of which was afterwards embodied in a Consolidated Order, dated the 22nd September, 1865. This Consolidated Order contains the regulations now in force relating to England, Wales, and Scotland. Some further Orders have been made prohibiting the importation of horned cattle and sheep, and regulating the importation of hides, from Great Britain into Ireland, and likewise prohibiting importation into the island and barony of Lewis.

(*a.*) Under these Orders inspectors have been appointed by the Clerk of the Council for the Metropolitan Police District; as to all the rest of Great Britain, the appointment of inspectors is discretionary in England with the Justices of each Petty Sessional Division, in Scotland with the County Justices in Sessions; within municipal boroughs the power is vested in the Mayor or Provost. The discretion, however, may only be exercised where the local authorities are satisfied of the existence of the disease in, or have reason to apprehend its approach to (this was added on the 26th August), the district over which their jurisdiction extends.

(*b.*) Every inspector is empowered to enter and inspect all premises within his district in which any animal (this word is defined as including neat-cattle, sheep, goats, and swine) may be found, to seize, slaughter, and bury animals diseased, and to disinfect the premises, and to order the separation of animals suspected of being diseased.

(*c.*) Owners of diseased stock are forbidden, absolutely, to send to market or expose for sale, to send by highway, railway, or coasting vessel, or, lastly, to turn out on common or unenclosed land any diseased animal: if within an inspector's district, they are also forbidden, without the inspector's leave, to remove from their premises any animal which is diseased or has been in the same shed or herd, or in contact, with a diseased animal, or to place any diseased animal in any field or pasture where, in the inspector's judgment, it would be likely to propagate the disorder.

(*d.*) The local authorities may, by published notice, exclude all animals, or any specified description of them, from any fair or market within their jurisdiction; and no animal is to be sent to the Metropolitan Cattle Market, so long as the Plague exists within the Metropolitan Police District, "except for the purpose of being there sold for immediate slaughtering, and every such animal, as soon as sold, shall be marked for slaughter in the same manner in which cattle are ordinarily marked for slaughter in the Metropolitan Cattle Market." The two latter provisions date from the 22nd September.

Inspectors have been appointed under these orders in a large number of districts. Cattle landed at the port of London or at any of the outports are inspected on landing by inspectors appointed by the Board of Customs, who are now veterinary surgeons, except in very few cases where no veterinary surgeon can be procured.

Orders in Council not effectual.

These Orders have not arrested the march of the Plague, nor can we persuade ourselves that they will materially serve to arrest it, now that it has spread so widely.

1. Inspection.

Inspection is the instrument on which the chief reliance is placed. But it is not enough to clothe an inspector with the most ample powers as to diseased cattle, if he cannot certainly know whether a beast is diseased or not. During the period of incubation, as the evidence shows, even a skilful practitioner may be at fault. Nor are we by any means sure that in all the infected districts a sufficient number of competent persons have been found, skilled in the diseases of cattle. The demand has been sudden; we have reason to doubt whether it has called forth an adequate supply. At any rate, many cases have been brought to our notice, in which tradesmen or others without professional qualification have been charged with this office. It must be added that an inspector, set to fight single-handed in his own district against this insidious enemy, with a private practice, and among farmers and butchers to whom he looks for employment, has a hard task to perform, and is likely to find their motives and opportunities for concealing the disease more than a match for his means of detecting it.

2. Metropolitan market.

An important step was taken by prohibiting stock from being sent to the Metropolitan Market, except for immediate slaughter. But how is this prohibition enforced? The beast, if sold, is marked by clipping the hairs of his tail, and this is understood to mean that he is marked for the butcher. But such a mark is sure to lose its significance as soon as the regulation becomes notorious; and, significant or not, there is nothing in it to prevent him from being carried into the country, turned out to graze, or resold, while unsold animals are not marked at all. Cases of this kind, where the animals carried infection with them, have been brought to our notice. In fact, of all the cattle which are sent from the country into London, about one-third, after having stood in the market, are distributed again from London over the country.

Power to close country markets.

The discretionary power given to local authorities of closing wholly or partially fairs and markets is still more important, provided it be exercised generally, promptly, and firmly. But, in the first place, such a power is not proper to be entrusted to Mayors of Boroughs and Justices of Petty Sessional Divisions. Wider interests are concerned than these little circles enclose. The Mayor of a town, to which its market brings large and regular profits, is not the fittest judge of the expediency of closing that market before it becomes a source of infection to the surrounding rural district. All Justices are not equally firm, equally ready to do an unpopular thing, equally convinced of the magnitude of the calamity. A large number of markets and fairs have, it is true, been closed, one by one, against lean or store cattle; the example once set has been gradually followed. But what has been done has not been done uniformly. In some places all fairs and markets for both store and butcher's stock have been stopped; in others those for store stock only. The periods of stoppage also have been very various. Here, however, uniform action is everything. Restraints on the ordinary course of business and traffic must be of brief continuance if they are to be strictly enforced; they must be sharp and sweeping if they are to be brief. What is necessary to be done should be done at the same time, wherever it is necessary, or it might almost as well not be done at all. In the second place, the prohibition is easily evaded, and does not go far enough for even its limited object. It is evaded (this also has been repeatedly urged on us) by auctions and other public but unauthorized sales conducted without even those imperfect checks and safeguards which exist at a market or fair.* Small jobbers too, we are informed, are beginning to roam the country with droves, out of which they supply customers who are not nice as to what they buy. It would be difficult to invent means better adapted to sow infection broadcast.

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* A later Order, issued on the 31st October, prohibits, wherever fairs or markets have been closed by the local authority, the "bringing or sending" of

Other measures required.

We are convinced then that other measures are required. We proceed to consider what those other measures should be. In doing so we shall endeavour to point out clearly the general course which we think should be pursued, without entering into details, which more properly belong to your Majesty's Government.

V.

We are perfectly sensible that this is a question of extreme difficulty. The difficulty lies in the magnitude of the sacrifices we have to call for, the inadequate notion which prevails of the extent of the evil to be subdued, the facilities for dishonest evasion and the risks from inadvertence which spring up with every attempt to mitigate those sacrifices. For it must be observed that we have not merely to guard against criminal or unscrupulous acts: nothing is easier than for a man, without being guilty of so much as gross negligence, to become the means of spreading infection over a whole county.

System of Cordons.

Let us first say a word about the system employed with so much success in Prussia; we mean the system of *Cordons*, by which infected places are isolated, and the disease either suffered to exhaust itself or stamped out by indiscriminate slaughter. Nothing can be more efficacious where the disease is confined to a very few points; but in order to be efficacious the isolation must be complete and must be soon over, and slaughter (as the Germans themselves hold) is merely wasteful where the number of animals is large. When the disease has widely diffused itself, and disappears at one point only to appear at another, the difficulties of isolation become greater, and the chances of its being efficacious less. We need hardly add that in countries accustomed to a strict half-military police and the constant presence of soldiery, where men and cattle are lodged in close-packed villages

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animals to any place for the purpose of exhibition or sale, and the receiving, exhibiting, buying, or selling of animals so brought or sent.

encircled by tracts of open ground, and where the system itself is well known and the necessity for it felt, it finds facilities which would be wanting among our lanes and scattered homesteads with a people to whom it was novel and who are unused to restraints and jealous of interference. These considerations are by no means conclusive against the application of it, with some modifications, to England, far less against resorting to it in Ireland, but they warn us against expecting too much from it, or relying on it alone.

Only complete remedy to stop circulation.

Against a disease which is highly contagious, undiscoverable at a certain stage, and too widely diffused for an army of inspectors to cope with it, there is clearly but one remedy which would be certainly and absolutely effectual. That remedy is, to prohibit everywhere for a limited time any movement of cattle from one place to another. Enforce this, and, within a time which cannot last very long, the disease is at an end. It must stand still, and it must starve for want of nutriment. This great sacrifice would certainly eradicate the evil; we cannot say so of any sacrifice less than this.

Difficulties of this.

We are perfectly sensible of the vast train of losses and inconveniences, public and private, which must attend upon such a measure; and the possibility of mitigating them by circumscribing the prohibition in different ways, without rendering it ineffective, is a point to which we have given the most anxious consideration.

Distinction between store and fat stock.

The distinction which may be drawn between lean and fat stock, or rather between cattle moved from place to place for the sake of grazing or fattening, and cattle moved with a view to immediate slaughter, here suggests itself at once. In the case of store stock, the risk of propagating infection is on the whole great, and the evil of stopping circulation is less. The farmer who has lean animals to dispose of, and the farmer who has winter food for them to consume, must undoubtedly suffer; and there might be reason to apprehend some diminution in the supply of winter-fed stock for the spring and early summer of next year. But it must be remarked that the fear of infection now deters many farmers—in infected counties, indeed, all but the very needy or the imprudent—from buying at store markets; and that the persons who would lose most by the application of the remedy are also those who are most deeply interested in the matter, and will be the greatest losers if no effectual remedy is found. We have little difficulty, therefore, in arriving at the conclusion, not only that public sales of lean stock should be suspended for a time, but that private sales, over which it is impossible to exercise an effective control, should be stopped likewise.

On the other hand, to interfere with the circulation of fat stock is to interfere directly with the meat market; and to embarrass it is to raise, for a time at least, the price of meat. To require that every bullock sold for slaughter shall be slaughtered on the premises of the seller, will undoubtedly in a multitude of cases be inconvenient to both farmer and butcher. There will be difficulties about the actual slaughtering, about the disposal of hides and offal, about transport; and these difficulties appear still more serious when we consider the manner in which the live-meat trade is now carried on, through salesmen and jobbers, and the vast quantities of fat cattle continually in motion to and from London, and from one market to another. A large system of trade and transport will have to be deranged, and many new arrangements to be made, and the cost of effecting these changes on the spur of the moment must fall to a considerable extent on the consumer of meat.

Questions which would spring from such a distinction.

If the distinction be admitted, however, many other questions arise. In the first place, how is it to be enforced? If a privilege is conceded to cattle destined for the butcher, how are we to make sure that a particular animal is really destined for the butcher, or that he will be slaughtered immediately, or slaughtered at all; or that he will not scatter infection on his road? May he be driven home by the nearest country butcher who will buy him, or must he be sent to market? May he go to any market, or only to one where conveniences for slaughtering and for careful inspection are or can be provided? May he, if unsold, be sent home again, or transported from one market to another, or if not, what chance will the seller have, should the market be overstocked, of making a fair bargain? In considering these points, it must be borne in mind that a butcher has, as some witnesses have remarked to us, facilities which a farmer has not for concealing the presence of the disease; and that he has not those motives for being on his guard against it which the farmer has. A farmer who brings home a diseased animal may probably lose his whole herd. But it is often the butcher's interest to ask no questions.

Answers more or less complete may be furnished on all the points above enumerated and precautions may be devised with a view to each of them. In general terms it may be stated that such precautions must in the main rest on some or all of the following expedients:—on a modified adoption of the *Cordon* system; on the imposition of new and peculiar legal obligations upon butchers, and probably upon drovers, railway companies, and the authorities in charge of markets; lastly, on a system, more or less extensive, of permits, certificates, or declarations. We ought not, however, to shrink from distinctly saying that no answers can be given which, in our judgment, are perfectly satisfactory, and no precautions invented on which it is possible entirely to rely; and that we believe it to be best for the country, and even for the interests which will suffer most in the first instance, that the prohibition against the circulation of cattle should be maintained in its integrity.

Reasons for general prohibition.

We have stated frankly the difficulties and sacrifices for which the country must be prepared, should this proposition be carried into effect. Of these difficulties the one which will probably be felt most strongly relates to the supply of food to the great towns. Fears have been expressed that to close the Metropolitan Market, for instance, against the influx of cattle from the country, would create a famine. We have already seen that the attempt to restrict the markets of London and Westminster during the Plague which raged here in the reign of George II. was given up on account of the clamour which it created; and it may be argued that the same thing would happen now. Circumstances, however, have widely changed. In the days of George II., meat could only be transported to London alive; even the roads along which the cattle travelled were what we should now think few and bad; there was little importation from abroad, and some difficulty must have been often found in supplying the wants of the metropolis by the ordinary means of communication. Now, every place where fat cattle are fed in large numbers is approached by railways, which can transport dead as well as live meat; and it seems no unreasonable demand to require that, for the sake of averting a calamity of almost incalculable magnitude, London should be content to be supplied with dead meat from the provinces, instead of constituting herself a hot-bed of infection by receiving twice a week great throngs of living cattle. This change is indeed in itself economical and advantageous, and appears to be gradually taking place as a natural consequence of the extension of the railway system. There is obviously an immense waste of labour in bringing the live animal to London in order that certain portions of its carcase may be consumed as human food; dead meat is more easily carried than the living creature, and it seems quite as reasonable to carry the butcher to the ox as to bring the ox to the butcher. We are informed that from Aberdeen alone upwards of 1000 carcases are sent up weekly to the English metropolis during eight months of the year, and 300 or 400 during the remaining four months, and that special dead-meat trains leave Aberdeen on this errand five days in the week. Nor is it to be forgotten that London is at the present moment fed in a great measure with foreign cattle. From the 16th September to the 18th October last, both inclusive, the number of English beasts in the market was but 14,645 to 20,185 foreign. It must further be observed—and this is the most important point—that a general prohibition is capable of being thoroughly enforced. The mere presence of a beast on any highway will be sufficient to prove the infraction of the rule. Any plan which, while laying down the general prohibition, admits exceptions in favour of cattle removed to particular places or for particular purposes, must rest upon the ascertainment of facts more or less complicated, to be proved by certificates from local authorities, upon the accuracy of which, experience warns us, little reliance can be placed. The liberty to remove cattle for particular purposes is sure to be extended and abused for other purposes. A man has only to profess an intention in accordance with the law in order, by a little dexterity, to obtain under such a system the utmost facility for violating the law. It will be a long time before the rules are understood, and the period in which they are violated through ignorance will be succeeded by the period in which they are evaded by design.

England is probably the worst country in the world for the working of a system of certificates, permits, licences, and passports; and the temptation to violate the rules will be very great, for the thought that naturally occurs to every one whose herd is attacked is to conceal the existence of the disease until he has got rid of those animals which do not yet show symptoms of its presence. To the objection, true as far as it goes, that the embarrassment thus thrown in the way of trade will probably tend to raise the price of meat, it may be answered, first, that such a rise in the price of meat will afford, at the expense of the community, the means of reimbursing the trade for the sacrifices it has made for the common benefit; and, secondly, that the immense destruction of cattle which such a measure is alone calculated to prevent is likely to raise the price of meat to a higher point, and for a longer time, than a regulation which really does little more than change the place of slaughter from large towns to country districts and places of importation. In the period from 1745 to 1757, almost every measure, short of the one which we are considering, was tried in vain. The disease at first advanced slowly, but it lasted twelve years, and then died out, apparently for want of animals susceptible of its influence, although the difficulty of communication from one part of England to another offered at that time the fairest chance for the success of palliative measures. England has now to contend with the Plague under disadvantages never experienced by any other country. The density of her population, the large quantity of her horned stock, and, above all, the enormous facility of communication by railroad, make her peculiarly liable to the ravages of a contagious disorder, and render the prospect of eradicating it within any reasonable time, either by slaughter or by curative and disinfecting measures, almost hopeless.

RECOMMENDATIONS.

1. *Suspension of Cattle Traffic in Great Britain.*

For the reasons stated above we feel ourselves compelled to recommend to Your Majesty that such measures shall be taken as may be requisite to invest, with as little delay as possible, some high officer of Your Majesty's Government with the power of suspending for a limited time the movement of cattle from one place in Great Britain to another, for extending or shortening such period, and for renewing the prohibition as often as circumstances may render necessary.

1*a. Suggested Regulations as to Cattle Traffic, should Recommendation* 1 *not be adopted.*

We believe that this measure offers, as we have already said, the only certain means of eradicating the disease, and we conceive that the end amply justifies us in proposing to the nation so great a present sacrifice. In submitting this, however, as our First Recommendation to Your Majesty, we are well aware that it is likely to excite much opposition; that the difficulties to which we have adverted may to some appear insurmountable; and that to those who do not regard the Cattle Plague in so serious a light as we do, the remedy may seem worse than the evil. This view may possibly be shared by Your Majesty's Ministers; we think it right, therefore, to go further, and to indicate the measures which might, in our opinion, be advantageously adopted, should an absolute suspension of the movement of cattle in Great Britain not be enforced.

a. For a period to be fixed, and which might, if necessary, be extended, no lean or store stock should be permitted to be sold at any fair or market, and sales of such stock by auction or advertisement, or in any other manner whatever, should be prohibited.

b. Cattle might be moved for immediate slaughter to a market or to a slaughter-house licensed for use, but only under a license for transit granted by the magistrates in Petty Sessions. The license for transit should certify to the healthiness of the district from which the cattle come. With this exception, and except in the case of cattle driven from one part of the same farm to another, the transit of cattle over any public road (including railways), or in any coasting vessel, should be absolutely prohibited.

c. Precautions should be taken that every animal sold for butcher's meat be slaughtered within a short and fixed period.

It may be convenient for this purpose that no slaughter-house should be used without a license from the local authorities, and no such license given except on the butcher's undertaking to have all cattle which may be sold or consigned to him driven direct to the slaughter-house or premises attached to it, from whence they are not to be moved alive. Cattle sold at a fair or market should not be allowed to leave the precincts of the borough or other place where the fair or market is held (in the case of London, the Metropolitan Police District) alive. To ensure this object, it might be required that cattle entering a fair or market should be branded or marked on entrance, and cattle sold elsewhere to a butcher similarly marked at the time of sale, and that it should be penal for any one but a butcher to have a marked animal in his possession. If any regulation of this kind is adopted, it would be advisable that in every place where a public market is held, lairs should be provided in which unsold animals could remain from one market day to another.

d. It would be desirable to draw some more distinct line between infected and uninfected districts than is at present traced by the Orders in Council. For this purpose, whenever a case of infection is discovered, or is known to have existed within a certain period before the time when these measures may come into operation, the district should be "proclaimed" as infected in 'The Gazette' and the county papers. The egress of live cattle from a proclaimed district should be strictly prohibited, but cattle slaughtered within it and certified by the district inspector to be fit for food might be sent out of it, under proper safeguards for disinfection. Provision should be made for enabling districts which had been proclaimed to be publicly set free, on proof being furnished that all risk from infection was at an end.

This latter proposal would, if adopted, strengthen the inducements of the inhabitants of infected districts to rid themselves of the disorder, and those of their neighbours to watch vigilantly against its approach.

2. *Powers of Inspectors.*

We are of opinion that the power to seize and slaughter vested in inspectors by the Consolidated Order may properly be withdrawn; or that, if retained, it should be exercised only in cases where the inspector's directions as to the separation of sound from diseased stock, &c., or any general preventive or sanitary regulations issued by the Government are not complied with. This power is right and useful when the disease has appeared only at isolated spots and attacked a few animals; the public benefit is then very great, and the private sacrifice small; but in proportion as it extends, the hope of thus arresting its march diminishes, the inevitable waste increases, and the sense of hardship tends to become insupportable. In principle, a system of compulsory slaughter should be complemented by a system of compensation, and the objections to promising compensation to individuals out of the public treasury on an extensive scale appear to us insurmountable.

3. *Foreign Cattle.*

No reference has hitherto been made to cattle imported from abroad. Should our first recommendation be entertained, and an absolute embargo placed on all traffic in cattle within Great Britain, we think that imported cattle should be slaughtered at the ports of landing. We are further of opinion that cattle should be allowed to land at certain ports only, where proper facilities can be afforded for inspection and transport. In the other alternative it will be sufficient to say that foreign cattle, if passed by the Customs' inspectors, and not coming from an infected district, may be sent by railway to any market in Great Britain, but shall be then subject to the same regulations as British cattle.

4. *Uninclosed Lands.*

During the period of prohibition, whether absolute or limited, no cattle should be allowed to be turned on common or uninclosed land.

5. *Periodical Returns.*

It is highly desirable that steps should be taken for obtaining periodical returns of the horned cattle and sheep within the area of every parish of Great Britain, and of their sanitary condition with especial reference to the present disease.

6. *Ireland.*

Before this Report is concluded some reference should be made to the peculiar circumstances of Ireland. The disease not having as yet broken out in that country, there is no necessity for the measures which have been recommended for Great Britain. It is still possible, by the adoption of suitable precautions, to avert the calamity from Ireland altogether. The importation of cattle into that country has already been prohibited for some weeks past. Considering, however, the destructive character of the disease, it will not be judicious to rely upon that precaution alone for escaping it. The evidence which has been laid before us leaves little doubt that it can be conveyed by persons who have been in contact with infected animals, as well as by the animals themselves. In case it should, by any accident, be carried over, the Government should be in readiness to eradicate it from any spot in which it may appear; and unless preparations are made for doing so before the Plague shows itself, the authorities will hardly be in a condition to act with the necessary speed and vigour when the emergency arises. In Prussia, upon whose eastern frontier the disease frequently appears, a system of precautions has been adopted for stopping its further progress, which have hitherto met with invariable success. It would probably not be difficult to make provision for the application of similar measures to Ireland, and so to secure to it a permanent immunity from the calamity under which Great Britain is at present suffering. But the extreme rapidity with which the disease spreads makes it important that all arrangements for stamping it out, in case of its possible appearance, should be made without delay.

We append to this Report a short series of practical suggestions, drawn up by those members of the Commission who are professionally qualified to deal with sanitary subjects, and which may be useful at the present time to owners of cattle.

(Signed) ROBERT LOWE.
LYON PLAYFAIR.
RICHARD QUAIN.
E. A. PARKES.
THOS. WORMALD.
ROBERT CEELY.
CHARLES SPOONER.

31st October, 1865.
MOUNTAGUE BERNARD.

SEPARATE REPORT OF EARL SPENCER, VISCOUNT CRANBORNE, MR. READ, AND DR. BENCE JONES.

We are unable to join the other members of the Commission in recommending the total stoppage of all movement of cattle in Great Britain. It is true, that, if such a measure were practicable, it would be more effectual than any other in extirpating the disease. But we do not believe it to be practicable. It would involve an interference with the course of trade at variance with our national habits; and it would demand sacrifices from large numbers of people, who are removed from the presence of the disease, and who will therefore not see the necessity for so stringent a measure. The sudden transformation of the enormous cattle trade by which the large towns are supplied into a dead meat trade, would involve difficulties and dangers of the most formidable kind. The foreign trade, which at this moment furnishes a considerable proportion of the meat consumed in the large towns, would also be seriously interfered with. The price of meat would, in consequence, rise materially and suddenly.

These difficulties would lead to the evasion of the prohibition. And if it is largely evaded, as we think probable, it will be worse than useless.

We prefer, therefore, the measures of a less stringent character, which are recommended as an alternative in the above Report. They demand no greater sacrifice than will readily be made to arrest the progress of so serious an evil; and therefore, we believe that they are likely to be thoroughly carried out.

In the other recommendations of the Report we heartily concur.

(Signed) SPENCER.
CRANBORNE,
CLARE SEWELL READ.
HENRY BENCE JONES.

We are of opinion, however, that store animals may be permitted to move from the farm of the seller to that of the buyer, provided they have a certificate from a Justice of the Peace acting in the district where the sale takes place, showing that they are free from disease and that they have been located for a certain time on the farm of the seller.

(Signed) SPENCER.
CLARE SEWELL READ.

31st October, 1865.

SEPARATE REPORT OF MR. M'CLEAN.

I dissent from the Report on the following grounds:

I consider that the magnitude of the calamity against which it is intended to guard, in no way justifies the interference with the traffic in cattle which the Commissioners in their Report recommend, and that the evils which would arise to the community from even a limited prohibition of the movement, or of the importation of foreign cattle, would far exceed the losses which may arise from the prevailing disorder.

By the last return issued by the Veterinary Department of the Privy Council Office—which, as regards the number of animals which have died of the Cattle Plague, is correct, and although not strictly accurate in other respects may be considered fairly to represent the progress and present extent of the ravages of the disease—it appears that up to the 21st of October, 1865, a period of rather more than four months from the time when the disease first appeared in Islington, 14,083 animals had been attacked, that of these 6711 had died, 5119 had been slaughtered, 707 had recovered, and 1546 remained under treatment.

The estimated number of horned cattle in Great Britain is about seven millions, so that less than 1 per 1000 of such cattle have died of the disease in four months, or about one per day for every 116,000 head.

During the same period of four months, sound and healthy cattle of the average value of (say) 15*l.* 15*s.* per head, have been imported from foreign countries at the average rate of 1000 per day, so that by the operation of the present system, involving careful inspection at the ports of landing, the gain to the country has been 16·6 sound cattle for each one that has died of the disease.

The growing necessities of the community in the matter of animal food, and the comparatively trifling extent of the injury hitherto inflicted by the disease, do not justify any exceptional legislation or any systematic interference by Government with the trade in cattle, a trade which, taking its position amongst the other great branches of national industry, must be subject to its own peculiar risks and liabilities.

The existing Orders in Council, enforced by the exertions of landowners, farmers, and graziers who have embarked their capital in the trade, appear to be sufficient for its protection; while by insurance or otherwise the parties interested should indemnify themselves against loss without appealing to the community to interfere for the preservation of their property by exceptional legislation.

Since the year 1750 the circumstances of the country and of the cattle trade have entirely changed, and no comparison can fairly be instituted between its state at that period and the present time.

In the year 1750 and the subsequent years of the Cattle

Plague, the trade in cattle was one of the principal industries of the country, and any loss sustained by the owners was almost irremediable, as there were then no available means of importing cattle from foreign countries for supplying the people with animal food.

In 1864 circumstances were very different. In that year the computed net value of the articles imported into the United Kingdom was nearly 275,000,000*l.*, of which upwards of 40,000,000*l.* was for alimentary supply, exclusive of spirits, wine, tobacco, and other exciseable articles.

During the same year the computed net value of the articles exported was 212,656,542*l.*, making a total value of 487,520,468*l.*, while the amount of all descriptions of property and profits assessed to the Income Tax was 326,775,501*l.*, about one-ninth of which was for occupation of land, and probably not so much as one-eighteenth was due to pastoral occupation.

The estimated value of the property which it is proposed to protect by penal laws and quarantine regulations, to be carried out at the expense of the community and to their serious loss, inconvenience, and certain discontent, is about 60,000,000*l.*, or about one-eighth of the annual value of the national imports and exports.

The importance of the cattle trade, as compared with the other branches of national industry, is much less in 1864 than it was in the year 1750, while the numbers of the people, their wealth, and means of purchasing animal food, have greatly increased.

The consumption of animal food is not now confined exclusively to the wealthy, but has become the necessary food for the working classes, and the use of it is so general, that so long as the disease can be discovered at a period when the flesh of the animal is perfectly good and fit for human food, it is impossible in this populous country for the disease to spread to any great extent, as all beasts showing the slightest symptoms of disease would be immediately slaughtered by the owner for his own protection.

As the demand, as shown by our imports of cattle, is greater than the home supply, there would only be partial loss when lean cattle had to be slaughtered.

The opinions expressed by witnesses of experience on the proposal to supply London exclusively with meat killed and brought from a distance, were not favourable to the plan.

It is further to be considered that any prohibition to the importation of foreign cattle would affect and derange the whole of our commercial relations and means of communication with foreign countries.

It would create distrust at home and abroad as to the safety of investing capital in establishing, by steam boats and otherwise, cheap and regular routes by means of which food is provided for the community.

It would deprive the foreigner of an important exchangeable commodity, in many cases the only one he has to offer, and possibly lead foreign Governments to impose restrictions on the export of any food from their respective countries, that might prove very detrimental to this kingdom.

The farmers of Great Britain cannot produce food enough for the people. Agricultural produce, including cattle, meat, butter, poultry, &c., to the value of more than 40,000,000*l.* sterling, has to be imported yearly from beyond the seas. Any legislation which should interfere with this supply, and the employment of the means which at great expense have been provided for its conveyance to this country, would inflict an incalculable amount of injury, and would occasion great and immediate suffering to the labouring classes, many of whom would be thrown out of work, while the price of provisions would be enhanced, and many of them now able to use animal food would be deprived of it. This would interfere with the value of labour, and with our means of competition with other countries, by increasing the cost of our manufactures.

With these facts and considerations before me, and after carefully considering the nature and extent of the present disorder in cattle, I am of opinion that it does not at present justify any further restriction in the movement or trade of cattle, and that the powers now vested in Her Majesty's Privy Council are sufficient to prevent the spreading of the said disorder, and to avert any future outbreak of it.

(Signed) JOHN ROBINSON M'CLEAN.

31st October, 1865.

SUPPLEMENT TO REPORT.

SANITARY RECOMMENDATIONS.*

On the subject of preventive and medical treatment the Commissioners have received, both from this country and from abroad, discouraging but decided evidence that all methods hitherto adopted have been found unsuccessful. Nevertheless, being of opinion that medical science may still be able to discover agents capable of mitigating the virulence of the malady, the Commissioners have drawn up a scheme of investigation into the nature of the disease, and have entrusted different enquiries to scientific men of great skill and ability, who will make reports on the subjects entrusted to them at the earliest possible moment.

In the mean time a few sanitary suggestions may be offered which are calculated to be useful to farmers and dealers in cattle. These may be divided into the following heads:

I. The general precautions which should be taken by cattle owners to prevent the spread of the disorder.
II. The special precautions required when the Plague is in the neighbourhood.
III. The measures, preventive and remedial, which should be taken when the Plague breaks out in a locality.
IV. Measures for disinfecting sheds and cattle which have been infected.

I. *General precautions to prevent the spread of the disorder.*

1.—As no successful plan of treatment has yet been proposed, the owners of cattle must, in the mean time, rely chiefly upon those hygienic measures which the experience acquired in other diseases show to be important in preventing the spread of contagion, and in diminishing the intensity and area of an attack, when, in spite of such measures, they invade a locality hitherto uninfected. In the case of the Cattle Plague it is certain that no sanitary precautions can prevent the spread of the disease when it is actually introduced; still, from analogy, we may draw the conclusion that some effect may be produced on the rapidity of the spread, or on the virulence of the disease, by placing cattle in the conditions most favourable to health.

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* Suggestions in the sense of many of these recommendations have been already drawn up by Professor Simonds and by Dr. Thudichum for the Privy Council, and have been circulated.

2. With this view it is important to secure strict cleanliness, good drainage, efficient ventilation, and to prevent overcrowding in all cattle sheds and cowhouses. No accumulations of litter fouled by the voidings of animals should be permitted in, or even close to, the houses or sheds in which cattle are kept. Chloride of lime, carbolic acid, or the powder containing carbolate of lime and sulphite of lime should be used. The latter is probably the best; it contains a well-known disinfecting substance which is formed when sulphur is burned, and also a strongly antiseptic material, kreasote, from coal tar. The sheds themselves should be swept and washed daily, and sprinkled with disinfectants. But such purification of the air of cattle sheds or houses will be insufficient to preserve health if the cattle be overcrowded. Pure air and nourishing diet are of great importance in protecting animals from the attacks of disease. Pure water, derived from sources uncontaminated by drainage from surrounding dungheaps, or from the absorption of vitiated air which hovers around them and in the sheds of cattle, is equally essential.

Every farmer should look to the housing of his cattle in the present emergency, as he would look to the housing of his own family, if cholera or other formidable disease were in his neighbourhood. Thorough cleanliness of the houses, good drainage, freedom from evil smells, nourishing diet with pure air and water, cannot give immunity from the disease, but they may offer obstacles to its propagation.

II.—*Special precautions necessary when the disorder is in the neighbourhood.*

Whenever the Plague is known to be in the neighbourhood, or to be approaching it, the following conditions must be borne in mind:

1. The natural voidings of a diseased animal, as well as the

discharges which come from its mouth, eyes, and nose, during the progress of the disorder, can be carried by men and animals so as to infect sound cattle, and in this way the disease is often propagated. A farmer should therefore at once give orders that none of his own labourers should go near infected beasts, and that none of the labourers working on the farm where there are diseased çattle should approach his stock. Even when veterinary surgeons visit cattle affected with the Plague, they should, if they have been with diseased beasts, first thoroughly cleanse their clothes, wash their hands with a solution of chloride of lime, and rub the soles of their shoes with disinfecting powder.

2. Both sheep and dogs can carry the seeds of the disease, so that they should be carefully looked after, lest, in having access to diseased cattle, they may attach to themselves portions of excrement or discharges, and communicate the contagion to sound cattle. The farmer will do well to recollect that both sheep and goats take the Plague in a virulent form, although they are not perhaps quite so susceptible to the influence of the contagion as horned cattle; but even when they do not take the disorder, the wool of the sheep and the hair of goats can long retain the morbific matter, and then transfer it to cattle.

3. The particles of the poison can be drifted by the wind to some distance, experience having shown that a space of considerably more than a hundred yards affords no protection; therefore, if a farmer has the opportunity, he should remove his stock to the furthest possible distance from that of his infected neighbour.

4. If a farmer have reason to think that some of his beasts may have been near infected animals, he should at once wash them over with the solution of disinfecting soap or with a tepid solution of chloride of lime, carefully sponging out the nostrils and mouth so as to remove all portions of discharges which may have been collected.

5. He should vigorously attend to the hygienic measures described in the last section.

III. *Preventive and remedial recommendations when the Plague has attacked a locality.*

1. Should, unfortunately, the Plague reach the farm or cow-shed, it will be the cattle-owner's duty to separate without delay the diseased from the sound stock. At once, and before any symptoms of the malady have appeared in the animals which may have been in contact with the diseased beast, he should place them in roomy, well cleansed and dried, well aired and disinfected sheds, having previously washed their bodies with water containing disinfecting soap, or with a tepid solution of chloride of lime; he will thus place them in the best condition to resist the further spread of the disease. But if he do not possess the necessary accommodation for the removal of the healthy animals, he ought, after separating the diseased beast, to make a thorough disinfection of the house or shed, in the manner to be described afterwards, before he permits the sound stock to remain in it.

2. The sick beast, if allowed to remain alive, should be well rubbed down and thoroughly cleansed, be kept in a warm but well-ventilated and clean shed, and be covered with a clean horse-rug. The animal will thus be put in a favourable condition to receive such curative treatment as the veterinary surgeon or farmer may consider it expedient to employ.

3. Having failed to obtain any assurance of the existence of effective curative methods, the Commissioners only venture for the present to indicate some general suggestions as to diet and treatment, which may be useful to farmers.

(*a.*) *Kind of food.*—One of the early symptoms of the disease is that the appetite fails and rumination ceases. When a dissection is made of an animal that has died of the Plague, the stomachs are usually found to contain from one hundred to two hundred pounds of undigested food. This mass of matter interferes with the functions of nutrition in the case of new food, and, further, hinders the action of medicine which may be administered, by greatly retarding its absorption. As soon, therefore, as the beast shows the early symptoms of the disease, its ordinary food should be changed; and, as rumination has stopped, the dry food should be replaced by warm liquid stimulating mashes given in moderate quantity.

(*b.*) *Warmth of the air.*—It is stated that the temperature of the air of the stall should be kept warm; probably not lower than 60° Fahr.

(*c.*) *Warmth to the skin.*—It is desirable to keep the skin of the animal as warm as possible, and if it can be done, to promote perspiration. Without expressing any decided opinion as to the exact efficacy of steam or hot-air baths, we yet believe the evidence is sufficient to warrant a fair trial of these measures.

(*d.*) It is important to lose no time in beginning the treatment of the complaint with salines or diaphoretics, or even stimulants, according to the judgment of the veterinary surgeon as to the state of the disease. Every hour that is lost lessens the chance of a successful result. After cattle have been exposed to infection, some veterinary surgeons consider it useful to give saline and febrifuge medicines at once, even though it is not certain the animal has taken the disease.

(*e.*) When diarrhœa occurs, there seems little doubt that it should be controlled, and not encouraged.

(*f.*) The animal must be supported as much as possible by very nutritious food.

(*g.*) Milking cows should be regularly milked as long as any milk can be got. The milk, of course, should not be used as food.

The general diffusion of the disorder through the system leaves little hope that any local treatment is likely to prove effective.

When the animal shows signs of convalescence, it should only be very gradually restored to the dry food requiring rumination. It may be treated with moderate stimulants and tonics, among which bark and iron are considered to be the most efficacious.

IV. *Measures for disinfecting infected sheds and cattle.*

1. When animals attacked with the Plague have become convalescent, they ought to be kept apart from sound beasts for three weeks, and even then not to be permitted to associate

with them till they have been washed and disinfected as described previously.

2. During all the time that animals suffer from the disease, the litter fouled by them, with the dung and discharge on it, should be burned, and not be allowed to mix with other manure. It contains the poison in a concentrated form, and it is questionable whether it can be disinfected efficiently.

3. The sheds in which the diseased animals have been must be thoroughly purified and disinfected. The roof and walls should be washed with lime. The floor and woodwork, after being thoroughly washed with water containing washing soda, should be again washed all over with a solution of chloride of lime, containing 1 lb. to a pailful.

4. The hides and horns of animals which have died of the disease ought to be buried with the animal, according to the Orders in Council. But the hides and horns of those which have been killed to escape the spread of the infection must be dipped in, or thoroughly mopped all over (and, in the case of the hides, on both sides) with water containing 4 lbs. of chloride of lime to three pailfuls of water. Unless this be done with care a most fertile source of contagion will be preserved.

5. The attendants upon diseased beasts should not be allowed to go near the sound animals in the same farm.

6. Every one who has had the Plague in his premises should feel the responsibility which rests upon him to destroy, by careful cleansing and disinfection, every trace of the disorder which may be left on his pastures or stalls, or on his cattle, their horns, hides, manure, and litter. Under favourable circumstances for its preservation, the contagious poison has been kept, with all its virulence unimpaired, for many months. Unless, therefore, each person uses his utmost effort to extinguish the seeds of the Plague which lurk about his farm, they may become a centre of contagion, which will again spread it abroad through the country, and render unavailing the sacrifice necessary for the speedy suppression of this terrible scourge.

THE CATTLE PLAGUE.

PART II.

THE PAST HISTORY OF THE CATTLE PLAGUE;

FROM THE EARLIEST PERIODS UP TO THE PRESENT TIME:

ITS RAVAGES IN GREAT BRITAIN AND ON THE CONTINENT OF EUROPE BEFORE 1865.

WE have precise accounts of the appearance of the Cattle Plague at stated intervals for the last 1400 years. It is doubtful, however, if the disease now familiar to us be the same Murrain which attacked the cattle of Egypt in the days of Moses. Youatt speaks of a pestilence which raged amongst the cattle of the Greeks during the siege of Troy. The plague referred to in Homer's *Iliad* is evidently the Bubonic Pest, and not the Rinderpest, as it spared neither mules, dogs, nor men. Virgil, too, in his *Georgics*, does not allude, as is believed by Youatt, to the Steppe Murrain, but to an epizootic form of malignant anthrax, affecting horses, oxen, dogs, and pigs. Columella, about 42 years before Christ, described a malady under the title cruditas as follows:—"Crebri ructus, ac ventris sonitus, fastidia cibi, nervorum intentio, hebetes oculi, propter quæ bos neque ruminat, neque lingua se deterget." He recommended a system of treatment, but especially the separation of the sick from the healthy. Outhof describes a plague, ascribed to 395, which from Hungary, Austria, and Dalmatia, had passed by Brabant into the Low Countries. Whatever the characteristics of the plague which affected cattle in ancient times may have been, is, however, comparatively unimportant. The true Murrain, respecting which we have authentic records, is shown to have spread westward from the banks of the Don and the Wolga towards the Danube, at the period of the migration of people, when the Goths descended towards Constantinople,and were repeatedly repulsed by Theodosius. In the course of time it stretched over the whole theatre of the war, decimating the cattle of Illyria, Northern Italy, France, and Belgium. So far as my researches extend, it is at this period we first hear of the Cattle Plague as a specific disease of the ox tribe, independently of epidemics, spreading from east to west. With reference to the year 809, we are told: "In illo anno venit mortalitas magna animalium ab oriente et pertransiit usque in occidentem."* When Charlemagne led his army against the Danes in 810, he was followed back into France by the Murrain, which created immense havoc amongst the herds of that country. "Tanta fuit in ea expeditione, boum pestilentia, ut paene nullus tanto exercitui superesset, quin omnes usque ad unum interirent, et non solum, ibi, sed etiam super omnes imperatori subjectus provincias illius generis animalium mortalitas immanissime grassata est."† In the same year, the Murrain appeared in Britain, for we are told, "Maxima mortalitas boum totam pene vastavit Europam, maxime Britanniam."‡ A few years afterwards, in 817, the cattle of Hungary were destroyed by the disease, which found its way across the Drave, and again extended to the west.§ The plague which cut off the cattle in France in the year 850 was probably the Rinderpest. Bouquet thus refers to a severe outbreak in 942: "In sequenti anno subsecuta est *pestis boum* ingens per totam Germaniam, Burgundiam et Aquitaniam: Italiam diu non tenuit." Spangenberg speaks of the Cattle Plague as prevailing in Saxony in 1043, and in 1149 the Steppe Murrain seems to have raged to a serious extent in Germany. Many startling accounts of great mortality by plague amongst animals, from which even men were not spared, in the eleventh and twelfth centuries have been published; but it is extremely difficult to trace with any degree of accuracy the progress of an isolated malady.

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* Chronicon Moissiac. Pertz M. 1, page 309, v. Heusinger.

† Einhardi Annales. Pertz M. 1, page 198, et Annal Fuldens.

‡ Gale Script. Hist. Brit. p. 252.

§ See Spinola Handbuch der Speciellen Pathologie und Therapie, für Thierärzte, Berlin, 1855.

Though it is probable that a period of fifty years rarely elapsed without a visitation of the Murrain of the East in some part of the European continent, authentic accounts of general attacks of this pestilence amongst cattle are not to be obtained from 1149 to 1223, when it again passed from Hungary into the western countries. The Russian invasions in Mongolia, and the fighting in Silesia, led probably, according to Heusinger, to the outbreaks of Bovine Plague in 1223, 1233, and 1238. From 1223 to 1225 the malady passed from the East through Hungary, Austria, Italy, the larger part of Germany, and the British Isles. This is the second time on record that the malady appeared in England; and it is somewhat remarkable that, as a rule, both these early outbreaks have been overlooked by writers on the subject. The great mortality amongst cattle in Europe in the years 1233 and 1234 spread from Hungary, having probably passed from Russia into the Hungarian Steppes. Very little is known of the outbreaks of Rinderpest which have been referred to the years 1238, 1241, and 1249; and still less of an outbreak attributed to 1299. The period of the Black Death, commencing in 1347, is one during which no reliable information can be gleaned concerning the Steppe Disease. Men, horses, cattle, deer, bears, wolves, foxes, sheep, goats, hares, and many other warm-blooded animals died, in the second half of the 14th and in the commencement of the 15th centuries; but these deaths were due to anthracoid plagues, which differed entirely in their origin and symptoms from what is now known as Rinderpest. In 1559 the Russian plague entered Prussia and raged with severity near Magdeburg, and in other districts. It broke out over the whole of Germany in 1598, and was probably the disease spoken of by Palladio, which in 1599 destroyed 13,000 head of cattle in Upper Italy. In times past, Rinderpest has frequently played havoc with the cattle of Venice and Lombardy. Trade across the Adriatic led to these disastrous consequences, and the plague had not to travel far when it is considered that for centuries the Hungarians suffered almost without intermission from the importation and development of the Russian disease. In 1616 the malady devastated the provinces of Padua, Treviso, Vicenza, and Udine to such an extent that the use of beef and veal was prohibited, and calves were not slaughtered for a considerable time, so that the stock of the country might be restored. In 1625 the plague entered the north of Italy, and extended itself along the banks of the Po. This was the cause of discord between the inhabitants of Padua and Venice; Dalmatian cattle-merchants introduced it into the first of these two cities, and thence it spread through the Venetian territory.

The reports on plagues amongst cattle are more circumstantial during the last half of the 17th century, though we find that Murrains of the most opposite kinds were still confounded one with another. This remark more especially applies to an account of a Murrain published in the *Philosophical Transactions* for 1683, page 93, in which outbreaks of malignant carbuncular fever in Italy and Switzerland are confounded with others witnessed in Poland and Germany, and which were probably forms of the Steppe Disease. Early in the 18th century we hear of many epizootics, of the Foot-and-Mouth disease, and of Pleuro-pneumonia; and Kanold refers in 1709 to an outbreak of Rinderpest which extended from Russia westwards. That writer traces the disease to Tartary, but does not hazard an opinion on the vexed question of its origin in the East. He says it may have penetrated European Russia from Asia, or originated spontaneously, like the plague which attacks man in Egypt and in Turkey. From its very commencement at this period the disease was recognised as highly contagious and malignant.

The mortality amongst cattle throughout the whole of Europe, from the year 1710 to 1717, has perhaps never been equalled. In 1709, the plague passed from Tartary through Muscovy, into Poland, Bessarabia, Croatia, and Dalmatia, and from thence into Upper Italy and France. From Hungary it travelled to the south of Germany and Switzerland, and from Poland it spread north and south into Silesia, towards the shores of the Baltic. Its ravages in Russia were great, especially in the provinces Novgorod, Pleskow, and St. Petersburg. Ramazzini wrote his 'Dissertatio de Contagiosa Epidemica' at this time,* in which he laid much stress on the eruption which appeared in the mouths of the animals on the sixth and seventh days after being attacked; this eruption was only a symptomatic aphtha, but from it Ramazzini styled the malady the "Cow-pox Plague." The pestilence found its way through the Papal States into the kingdom of Naples, where, in a short time, the mortality more than doubled that of the north. During this outbreak it was computed that in Naples 70,000, and in Silesia 100,000, head of cattle perished. The malady spread into the Netherlands, and 300,000 animals succumbed to its deadly influences. From the 27th November, 1713, to the 5th November, 1721, the Dutch prohibited the importation of foreign stock. The disease was especially fatal in Denmark, Holstein, and Finland. It crossed the Channel into England in 1714. It broke out at Islington about the middle of July, and the Lords Justices in connection with the Lord Chancellor, nominated a commission consisting of four Justices of the Peace of the county of

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* Padua, 1711.

Middlesex, and Mr. Bates, surgeon to the King's Household.* The commissioners went to Islington and found the report correct. A Mr. Ratcliffe had lost 120 cows out of 200; Mr. Rufford 62 out of 72; and Mr. Pullen 38 out of 87. Fearing that they would not get a sale for their milk, the dairymen spoke reluctantly of their losses. Mr. Ratcliffe, however, described the disease as commencing with loss of appetite, cough, clayey fæces, discharge from nose, offensive breath, and lastly, diarrhœa, with blood sometimes mixed with the fæces. Some died in three days, others in five or six, but bulls lived eight or ten days. The commissioners consulted with cow-leeches, and all regarded the malady as a plague. Mr. Bates made the following proposals:—

1. That all cows affected with disease should be burned. That all catching the malady afterwards should be burned.

2. The stables in which the sick cows stood were to be washed and disinfected, by burning pitch, tar, and wormwood in them. They were to remain empty for three months before any other cattle were admitted into them again.

3. The fields on which sick cattle had grazed were to remain empty for two months.

4. Persons attending on sick cattle were not to go near healthy ones.

5. Cow-keepers were to be instructed to separate any cows refusing food, and the cases were to be reported to the authorities.

6. Cow-keepers were to separate their stock into small lots, each of which was not to consist of more than 12 animals. All complying with the orders were to receive compensation.

The Government allowed forty shillings for every cow that was burned, if it had only been sick for twenty-four hours, but if the animal had been longer ill, or was only reported when dead, the value of the hide and horns alone was allowed. This low rate of compensation gave rise to great dissatisfaction amongst the cow-keepers. The Government prohibited the sale of sick cattle, and appointed inspectors to watch for them. The cow-keepers usually neglected to report the presence of the disease, as publicity interfered with their trade.

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* A brief account of the contagious disease which raged among the milch cows near London, in the year 1714. Communicated to the Royal Society by T. Bates. 'Philosophical Transactions,' vols. 30 & 31.

In the month of October the same disease made its appearance in Norfolk, Suffolk, and Hertfordshire, and Mr. Bates made some proposals concerning the effectual burial of diseased cattle. The losses were not so great in England as they had been abroad, and it did not last in a virulent form more than three months. It was not, however, entirely subdued until Christmas of 1714. The counties of Middlesex, Essex, and Surrey, lost 5418 bulls and cows, and 439 calves. The cow-keepers stated on oath that their aggregate losses, estimating the value of each cow at 6*l.*, amounted to 24,500*l.*

Very stringent measures to counteract the malady were adopted in Germany, but the ravages of the disease were so fearful that, according to Paulet, in the three first years of this attack, 1,500,000 head of cattle perished in Europe. Shrock,[*] Ramazzini,[†] Kanold,[‡] Lancisi,[§] Genf, and many other physicians, wrote upon the subject. Kanold says, that from 1713 to 1730 the scourge appeared here and there, but not generally over Europe. Indications of it were manifested in 1723, 1724, 1728, and 1729. It again found its way across Wallachia, Podolia, Volhynia, Hungary, Austria, Prussia, Saxony, and, crossing the Palatinate and following the war, it entered Italy in 1735.

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[*] L. Schrock, Constit. epidem. August, an. 1711.

[†] Loc. cit.

[‡] 'Historischen Relationen von der Pestilenz des Hornviehs,' von Johannes Kanold, Breslau, 1714.

[§] Lancisi, 'Dissertatio historica de Bovilla Peste.' An. 1711, et Genevae, 1768.

A Venetian mandate of the 9th October, 1735, reports the disease as existing at Friuli, Bassanese, Trevigiano, and in the Coneglianese; by the 3rd of December it had reached the provinces of Verona, Brescia, and Crema; on the 4th of January, 1736, it broke out near Mantua and Milan, and extended to the Roman states; it also entered Piedmont, and raged there till 1739. In 1740, Hungary and Bohemia again suffered, and the pestilence rapidly covered the whole of Germany—through the south into Switzerland, Piedmont, Franche Comté, and Dauphiné—northward from Poland to Courland, Livonia, Denmark, Sweden, Holland, and England. In 1742 it was imported into Lorraine and the Vosges, and, according to Courtivron, it followed the army in 1743 from Bavaria into Alsatia. The same year it entered the Dauphiné and Franche Comté from Switzerland, and continued to commit great havoc among the herds in France during the years 1745, 1746, and 1747.

The Plague entered Italy both through Piedmont and through Venice. It passed into Piedmont during the war of 1744, and led to terrible losses in Upper Italy. Speaking of the misfortunes of war in 1745, Muratori says: "And they were not all the misadventures of Piedmont. In the preceding year the Cattle Plague had penetrated in these parts, and it was calculated that about 40,000 oxen and cows had died. A potent means of spreading any pestilence is war, which breaks through every precaution or measure suggested by human prudence. It was owing to this that the malady extended its deadly influence in the preceding year through Monferrato and other parts of the Sardinian Kingdom, and thence passed to the districts of Milan and Lodi, reaching Piacentino, beyond the river Po, winding its course along the rivers in the Bresciano, and spreading alarm through Lombardy. The destruction was beyond description, and what may be the consequences of so serious a catastrophe I need not teach those countries which have been desolated, and which have been at the same time oppressed by the weight of war. It has been estimated that 18,000 head of cattle perished in the states of Milan."

In the month of October 1745 the Steppe Murrain penetrated the Tyrol; from Carinthia it travelled to Venice, and only ceased in that State in 1749. It passed through Germany to Holland in 1744, and in two years destroyed in that country upwards of 200,000 head of cattle. The faculty of medicine at Leiden was at this time consulted as to the means whereby the Plague might be abated, and its report was published in Dutch by Luchtmans. In 1745, Professors de Haen, Ouwens, and Van Velse, and Dr. Weiterhof, wrote a dissertation on the subject which was published at the Hague, and M. Engelman contributed an essay to the seventh volume of the 'Acts of the Society of Haarlem.' From 1745 to 1749 it killed 280,000 animals in Denmark. "The 14th of January, 1746, was appointed a day of public fasting and prayer to be observed all over Denmark on account of the mortality among the cattle through that kingdom. It is reckoned to have carried off no less than 60,000 before the middle of December. It advanced likewise in Jutland and the apprehensions of it engaged most people to kill their cattle."* It entered Sweden, and, according to Linnaeus, in the province of Schonen 32,584 oxen and cows died, leaving alive only two per cent. of the entire horned stock of the province.

In 1745 the disease passed from Holland to England. This was probably its fourth importation into Britain. If we can rely on the early records of this Plague, it reached our shores, as shown above, in the years 810, 1225, and 1714. The fourth invasion was worse than its three predecessors, and commenced, like the last, near London. Dr. Cromwell Mortimer, Secretary to the Royal Society, furnished "Some Account of the Distemper raging among the Cow kind in the neighbourhood of London"* to the Royal Society on the 21st of November, 1745. He had "been at the trouble of visiting several of the cowhouses near the skirts of Westminster and London." In this first letter special mention is made of a poor man who "made a hearty meal of some steaks he cut off one of these cows, and that he was not sick with it." "I am assured," adds Dr. Mortimer in a note, "that a very sufficient experiment was made in our army in Flanders last campaign in favour of this."

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* 'Scots Magazine,' vol. xvii., 605.

In a second communication, dated the 12th of December, 1745,† Dr. Mortimer expresses his difficulty in accounting for the cause of this distemper, and adds: "The cows in Essex had the distemper in summer; it first began about London in autumn. It has spread itself equally among cows which have lain in the fields at nights and those which stood in stables or sheds. It spread itself in Essex at first into such farms where they bought in strange calves or lean cows at market, which they did not know where they came from, but most probably from the hundreds where the disease broke out; but how it got thither, whether by importing any cattle from Flanders, I know not."

In "A Third Account of the Distemper among the Cows," read by Dr. Mortimer on the 9th of January, 1846, some quick cases of the distemper are referred to, and it is suggested whether it would not be the most likely means to put a stop to the spreading of the distemper to forbid any cows or calves being brought to market to be sold alive, or that any farmers should buy in any fresh cattle for six months, or till it is found that the distemper is entirely ceased; and that all fat cattle should be kept carefully separated from the cows and calves, and that under severe penalties.

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* 'Philosophical Transactions,' vol. xliii., 532.

† Ibid. p. 549.

n the occasion of the last communication being read, Mr. Theobalds, F.R.S., informed the gentlemen present that the first infection of the dreadful distemper among the cow kind was brought over from Holland in April, 1745, by means of the white calves which a farmer at Poplar near London sent for, in order to mix the breed. The infection was got to Maidenhead in Berkshire by two cows brought out of Essex and sold at the fair there. There was observable "a very disagreeable smell on the clothes of persons who had been very conversant with sick cows," and "the infection had been propagated by means of sheep, who, it is presumed, carried it in their wool." Dr. Parsons, another Fellow of the Society, said "that the cattle in the high ground about Hampstead, Highgate, Millhill, and Hembden, had hitherto remained free from infection; but that it has spread all about in the lower grounds."

Another account of the origin of the Cattle Plague in England in 1745 is, that one of our tanners bought a parcel of distempered hides in Zealand, which were forbidden to be sold there, and should have been buried, and thus he transplanted this dreadful disease here. "Thus by one man's unlawful gain," says Mr. Layard, "if by this way it was conveyed, the ruin of many graziers and farmers was effected." It is certain, however, that the pest first appeared in the immediate neighbourhood of London, and on the Essex side of the river, and that thence it gradually spread through Essex and Hertfordshire, and the whole of the kingdom. For more than twelve years it continued to lay waste the country. The number of beasts that were actually destroyed by it was not, and perhaps could not be ascertained; but in the third year of the Plague, when the Government had so seriously taken up the matter as to order that every beast that exhibited the slightest mark of infection should be destroyed, a remuneration being made to the owner, no fewer than 80,000 cattle were slaughtered, besides those which died of the disease, and which formed, according to the narration of one of the commissioners, nearly double that number. In the fourth year of the Plague they were destroyed at the rate of 7000 per month, until, from the numerous impositions that were practised, this portion of the preventive regulations was suspended. A new order was issued by the King in Council on the 15th of January, 1747, which forbade the suffering any ox, bull, cow, calf, steer, or heifer, whether fat or lean, to pass the Humber and Trent northward, from the 19th of January, 1747, to the 27th of March; lean cattle feeding in a pasture not sufficient for them, were allowed to be removed to some other pasture in the neighbourhood, though in a different parish, on producing a certificate of their being in health; and the prohibition formerly laid on the removal and sale of calves, was taken off from all fatted calves.* In this year more than 40,000 cattle died in Nottinghamshire and Leicestershire, and in Cheshire 30,000 died in about half a year. Other counties suffered but not in the same proportion.

On the 30th of August, 1848, it was announced that the justices of the peace of several counties, where the distemper had raged among the horned cattle, had certified to the Privy Council that the infection had ceased. In the month of September of the same year it was declared that the distemper among the horned cattle had broken out afresh about Burton-upon-Trent in Buckinghamshire, and also near Camberwell in Surrey.

In the month of September, 1749, a report from Manchester was published, to the effect that the Plague had reached Lancashire, and that it continued to rage in the counties of York and Durham.

The distemper raged in the month of November, 1750, in the Isle of Ely, and some part of Suffolk.

In the month of May, 1751, it was reported that "the infection among the horned cattle raging in Yorkshire, Lancashire, and Westmoreland, the justices of the peace of the neighbouring county of Cumberland have, at their Quarter Sessions, ordered the roads to be strictly guarded for preventing the introduction of cattle, hides, carcases, or tallow, from any adjacent English county. The said distemper is broke out also in the counties of Wilts and Oxford, which has alarmed the justices of the counties of Gloucester, Hereford, and Monmouth; and the justices of Somersetshire have forbid the bringing of cattle from Wales, Wiltshire, and Gloucestershire, an advice that the distemper is spread into those parts. In Cheshire they have lost 30,000 cows since October last."

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* 'Scots Magazine,' vol. ix. p. 46.

On the 26th of February, 1752, it was reported that the justices at their respective sessions had announced that the distemper was raging in the parishes of Ash Church and Beckford in Gloucestershire; in several parts of Buckinghamshire and the adjacent counties; within the division of Holland, and in several other parts of Lincolnshire; and in the counties of York, Lancaster, and Derby.

In the month of March, it was declared that the disease seemed to be much abated. In Wiltshire it had totally ceased, but, in Somersetshire, 16 had died in the parishes of East Chennock and Closworth.

On the 9th of May, it was said:—"'Tis hoped the distemper among the cattle at East Chennock is stopt, not one having been taken ill for above three weeks. Great care has been taken by the justices to prevent the calamity from spreading; all fairs have been stopt for some time, and above 20 shot by order of the clerk of the peace. The cattle were appraised, and the owners paid out of the county stock; and one of the oxen in an ox waggon which carried the soldiers' baggage from Sherborne falling down dead, the other five were immediately shot."

On the 31st of May, it was announced that the distemper was about six miles east of Reading, Berks, where it had not been before.

Early in 1753, "The distemper among the cattle being broke out near Malmsbury in Wiltshire, 15 belonging to one man were ordered to be shot, and the justices of the peace this day prohibited the holding any fair or market, and removal or sale of any, except fat cattle, for immediate slaughter."

On the 15th of October, 1753, a farmer of the parish of Shemping in Suffolk was convicted, on his own confession, before two justices of the peace in the penalty of 100*l.*, for buying and driving infected cattle contrary to law, and immediately paid the penalty, and his servant was afterwards committed to Bury gaol, not being able to pay the penalty of 50*l.* for intimidating and preventing the inspector and parish-officers from executing His Majesty's order and regulations, and not suffering them to kill four beasts that were distempered, whereby the infection was spread into several adjoining parishes.

On the 26th of October, 1753, the clerk of the peace for Ipswich received notice of upwards of 60 parishes within the county where the distemper had broken out amongst the cattle.

On the 3rd of November, 1753, it was reported that the distemper among the horned cattle had broken out at Chatham, and 97 had died on the roads between that place and Canterbury. The infection was supposed to have been communicated by some droves lately brought from distant counties.

In February, 1754, it was stated that the distemper continued to rage amongst the horned cattle in the North Riding of Yorkshire, and some parts of the county of Durham.

In the 'Gentleman's Magazine,' November, 1754, I find it stated that "Mr. Dobson, a gentleman of Yorkshire, lately communicated to Mr. Tyson, a farmer and higgler of Tottenham in Middlesex, a method of preserving his cattle by inoculation. This method Mr. Dobson had learned from an eminent physician in Yorkshire. The operation was performed by an incision in the dewlap, into which was inserted a piece of tow dipped in the morbid matter discharged from the nostrils or eyes of an infected beast, and this was allowed to remain till the symptoms of the distemper appeared." Mr. Dobson thus preserved nine in 10 of his whole flock.

Sir William St. Quentin, of Scampston in Yorkshire, inoculated eight calves, seven of which had the distemper from the inoculation and recovered, and were afterwards turned into a herd of infected cattle without being infected a second time. An ox at Malton was inoculated, and resisted infection though placed successively with two herds that died.

In the month of December, 1754, several cows died of the reigning distemper in St. James's Park.

The malady continued more or less in 1755-56. In the month of April, 1757, we find it stated that the contagious distemper among the horned cattle had appeared at Lewisham in Kent, and in some parts of Somersetshire. On the 28th of June, the royal assent was given to an Act more effectually to prevent the spreading of the distemper now raging amongst the horned cattle in the kingdom; and, in the month of October, the justices of the peace for the county of Essex at their general quarter sessions prohibited all fairs and markets in order to prevent the spreading of the disease. After this, little more was heard of the subject.

Writing from Huntingdon, on the 26th of November, 1757,* in a letter to the Right Hon. George Earl of Macclesfield, P.R.S., Dr. Layard strove to remove all doubts and bring convincing proofs of the absurdity of fearing a second infection; to show inoculation to be a necessary practice; and that the contagious distemper might be communicated more ways than one. He says—"An entire conviction of the analogy between this disease and the small-pox would not permit me to omit mentioning the great advantages which must arise from inoculation. . . . . . . So long, my lord, as the distemper has raged in Great Britain not one attested proof has been brought of any head having this disease regularly more than once . . . . . . The Marquis (de Courtivron) says that this distemper is not communicated but from one beast to another immediately. I must beg leave to say that, to my knowledge, the distemper in February, 1756, was carried from the farm-yard where I visited some distempered cattle to two other farm-yards, each at a considerable distance, without any communication of the cattle with each other, and merely by the means of servants going to and fro, or of dogs."

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* 'Philosophical Transactions,' vol. l., Part II., p. 528.

From 1750 to 1751, 20,000 prime animals were destroyed on the small Island of Oesel. The disease raged fiercely in Courland and Livonia from 1747 to 1753; Gallesky tells us that in 1750, 145,000 head of cattle died in Prussian Lithuania alone. In 1755 MM. Nozeman, Kool, and Tak, published in Holland their observations on the inoculation of cattle; and Grashuis contributed a paper on the same subject in 1758 to the 'Choice Treatises,' published at Amsterdam by Honttuyn. Professor Schwenke also published an article on inoculation in the first volume of the 'Bremen Magazine.' The Plague wore itself out in the course of ten years in some parts, but it lasted for more than thirty in others; and, in spite of the wisest counsels proffered by the learned of Europe, 3,000,000 head of cattle were cleared off.*

The ravages of the Cattle Plague turned the attention of professional men of all countries to the vast importance of studying the diseases of animals. The great want of competent men to recognise the nature of maladies affecting cattle was one cause of the cordial support which Bourgelat secured when, in

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* Delafond, 'Police Sanitaire.' Paris, 1838.

1762, he founded the first Veterinary College in the world—that of Lyons. The Plague was not very rife then. It had ceased to be general in 1750. Twenty years passed over, and cattle-breeders prospered; they accumulated stock to feed the pestilence of 1770. The disease which Youatt refers to as appearing in France in 1757 was not the Rinderpest; that disease spread from west to east, instead of from east to west, and was not limited to the ox. In 1765 the Steppe Murrain prevailed in Turkey, and was imported into Bruck on the Leitha in Hungary in the month of February of that year, continuing until Autumn, and, according to Koczian, passing into Saxony. Outbreaks were more common in 1766 when the disease appeared in Austria, Prussia, the Marche of Brandebourg, and Holland, where it prevailed in 1767, 1768, and 1769, passing afterwards into Belgium. Adami tells us that the Russian plague was very prevalent in Lower Austria in the years 1768, 1769, and 1770. Hupel speaks of the Cattle Plague as extremely prevalent in Livonia from 1769 to 1772. In 1769 the true Cattle Plague again entered Holland, and the ravages it committed are described as terrible in the extreme. In 1769 and 1770 it carried off 98,000 animals in the one province of Frisia, and in the south of Holland during one year 115,665 head of cattle died from its effects. During the same period, in the northern part of Holland, the disease attacked 225,831 animals, of which 162,276 perished; so that the total loss in Holland alone during one year amounted to 375,441. Paulet assures us that before this outbreak entirely ceased, the Dutch had lost 600,000 head of cattle. Towards the end of 1769 the malady appeared in England; and His Majesty referred to the distemper in his speech to both Houses of Parliament on Tuesday, the 9th of January, 1770. He said: "It is with much concern that I find myself obliged to open this Session of Parliament with acquainting you that the distemper among horned cattle has lately broke out in this kingdom, notwithstanding every precaution that could be used for preventing the infection from foreign parts." *

In the 'Scots Magazine' for 1770 there is a considerable amount of information on the Cattle Distemper. In the March number it is said that "the distemper among the horned cattle, the lamentable effects of which in Holland are related in our last, having made its appearance in this country, the gentlemen who have the honour to serve the King exerted themselves speedily, and we hope successfully, to stop its progress." The disease was first supposed to have been communicated to cattle at Portsoy, in the county of Banff, by four packages of hay imported from Holland. Dr. Cullen, writing on the 15th of April, 1770, says: "It is needless to mention that the distemper made its first appearance at Portsoy, a seaport-town situated on the Boyne, in the Moray Frith, about eight English miles to the west of Banff and four to the east of Cullen. In order if possible to eradicate at once such an alarming calamity, the justices of the peace of Banffshire resolved to destroy every horned head in Portsoy and the neighbourhood, infected and not infected, and to bind themselves to see the proprietors fully indemnified of the value of the sound cattle. This was punctually executed on the 21st and 22nd of March, and the carcases, horns, skins, and all, were buried about four feet under ground. Then the dung of all the infected byres with the upper part of the floors were also buried; and the byres were thoroughly fumigated with tar and brimstone. The justices at the same time appointed all the cattle within two English miles round Portsoy to be daily visited by four of the most respectable farmers in the neighbourhood, who were ordered to make a report every day of the state of all the cattle within the circle of their visitation. Orders were likewise issued to all the Earl of Findlater's fishers on this part of the coast, prohibiting them, in the strongest

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* 'Annual Register,' vol. xiii. p. 244.

terms, from assisting, directly or indirectly, to land any goods in a clandestine manner from any ship which might happen to arrive on the coast. This happened about ten days before the prohibition by the sheriff and admiral appeared. For eight days after the Portsoy cattle were buried, the inspectors reported 'all the cattle well,' and the most sanguine hopes were entertained that the contagion had entirely subsided; but, to the unutterable astonishment of everybody, intelligence was brought to Cullen, on the 4th of April, that one of the cattle of my Lord Findlater's tenant at Dytach, situated at the distance of about two English miles to the east of Cullen, three from Portsoy, and one without the line of circumvallation, was dead, and four more very sick. A meeting of the justices was held next day at Portsoy, when information was received that some cattle belonging to General Abercromby of Glassaugh were likewise bad. The justices resolved to make one vigorous effort more to root out the infection, by ordering all the Dytach cattle and all those belonging to the General which were kept in the same place with his sick cattle, to be immediately knocked on the head, and buried like those at Portsoy. This resolution was carefully executed on Saturday and Sunday se'nnight. The justices at this meeting likewise resolved to enlarge the circle of inspection, and accordingly appointed inspectors for all the parishes of Cullen, Dellford, and Fordyce, who were appointed to visit and make report every day of the state of all the cattle within these parishes, which comprise a circuit of eighteen English miles at least. Hitherto no appearances of the infection have been discerned, and people begin again to flatter themselves with the hopes that it is at last fundamentally rooted out. In the mean time the vigilance of the justices and of the people in the country is nowise relaxed. A report having prevailed here that the tenant of Dytach intended to discharge some of his servants who had been employed about his oxen, a positive prohibition was sent him not to dismiss, before the expiry of a month, any of his servants, and to keep them within the bounds of his own farm as much as possible. In a word, every precaution has been used that seemed in the least conducive to extirpate this very dangerous distemper."

An Act received the Royal Assent on the 16th of February, 1770, for indemnifying all persons with respect to advising or carrying into execution His Majesty's Orders of Council, made for preventing the spreading of a contagious distemper amongst the horned cattle, and for rendering the same valid and effectual, and for preventing suits in consequence thereof; and to authorise the continuing, extending, and executing the same for a further time.

Dr. Cullen's Memoir concerning the contagious disease affecting the horned cattle is of a most interesting and satisfactory description.

"The sheriff-substitute and justices of peace of Banffshire met at Portsoy on Friday, September 14th, 1770, and made a dividend of 799*l.* 12*s.* 2*d.*, issued from the tenancy upon the first certificate to the proprietors of the cattle which had been slaughtered in order to prevent the spreading of the contagious distemper then raging among them; as also to all others who had been in advance of money upon the same account."*

At the Court at St. James's, September 14th, 1770, present the King in Council, an order was issued, in consequence of the contagion among horned cattle having broken out at a village called Werlpen, between Furnes and Newport, about four leagues from Ostend in Flanders, and supposed to have come from the side of Berg St. Wenon, about two leagues from Dunkirk, where it actually was. This order prohibited the importation of any cattle, or of any manner of hides or skins, horns or hoofs, or any other part of any cattle or beast, from Dunkirk or any other part of Flanders, or from any of the places mentioned in the aforesaid order of May 26th, 1769, into the kingdom of Great Britain and Ireland.*

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* 'Scots Magazine,' vol. xxxii. p. 517.

In a letter to Joseph Banks, Esq., President of the Royal Society,† Dr. Layard said :—

> In consequence of the essay which I published in 1756, I was called upon in 1769 by Government to assist with my advice towards the stopping the progress of the contagious distemper among the cattle which had broken out in Hampshire; and by mere accident I discovered how the infection was brought from Holland to London, and was conveyed into that country.
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> Speedily and effectually to extirpate the calamity, no assistance was permitted to visit the infected villages, lest the farmers should be induced to prolong the illness by attempting to cure their cattle; but positive orders were issued that all the cattle should be killed and buried properly, by which vigorous and salutary directions the distemper ceased entirely in a short time.
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> The same Acts of Parliament and Orders of Council, to kill the cattle and bury them deep, succeeded also soon after in North Britain; and to the former Acts and Orders issued in His late Majesty King George the Second's reign, these alterations were made: to order that the infected cattle should be killed, without effusion of blood, by strangling; the hides to be neither cut nor slashed, but the carcases buried whole; and that all the fodder, litter, excrement, &c., should be buried, instead of being burned.
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> Since that time the contagious distemper has been brought twice into Essex and once into Suffolk from Holland, and as often stopped by the same means.
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> His Majesty having most graciously been pleased in April 1770 to appoint me to hold a foreign correspondence, the orders and regulations which had happily succeeded in Great Britain were communicated to the Dutch, the Flemish, and the French, and copies of all papers delivered to Baron Nolcken, the Swedish Minister. In Flanders, and Picardy in France, the system of killing was adopted, and succeeded. Afterwards in 1774, when the same contagion was carried into the South of France from Holland through Bordeaux, many attempts having failed to effect a cure, the devastation was at last stopped by no other means than by killing the cattle, as in Great Britain. And here I beg to observe, that Mons. Vicq d'Azyr, in his *Exposé des Moyens Curatifs et Préservatifs contre les Maladies Pestilentielles, des Bétes à Cornes*, published by authority at Paris in 1776, says, p. 577: "That the salutary effects of the precautions taken in the Austrian Low Countries had excited the attention of the English, who by the same means got rid of the same calamity. They have exactly and scrupulously translated and put into

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* 'Scots Magazine,' 1770, vol. xxxii.

† 'Philosophical Transactions,' 1780, p. 536.

execution the edicts issued from the Juntos of Ghent and Brussels, and their undertaking has been crowned with the most complete success." Mons. Vicq d'Azyr was misinformed; for, on the contrary, the late Mr. Consul Irvine transmitted the Acts of Parliament, the Orders of Council, and my papers, containing every necessary instruction, to a member of the Junto of Ghent, whence they were sent to the Government at Brussels; and it was also a long while before the Juntos could be prevailed upon to adopt the system of killing, as they called it. It originated in England in 1747; and it is certain that the Court of Vienna knew fully the obligations which the Austrian Netherlands had to the British Government, whose orders and regulations had been implicitly followed, and which Mons. Vicq d'Azyr says, p. 585, "He had modified and adopted to the rules of French government."

In Flanders the infection was also prevented from spreading a second time by the same method of proceeding; but unfortunately in Holland the cattle continue to be exposed to the same disease. The half-yearly returns which have been regularly sent me contain melancholy accounts of the severe loss of cattle; sometimes the whole have perished; at other times two-thirds have died; and generally above half fell when the sickness was less violent.

In a country where the illness is become general, and constantly raging more or less, where the system of killing cannot now be thought of, and where inoculations have met with so many opponents of all ranks, there can be no other hope of getting rid of the calamity than by admitting into the United Provinces no other cattle than such which are sound, or recovered from the infection.*

I shall not trouble you, Sir, with the returns from Holland, or the tables of inoculation in Denmark, which would too much increase the length of this letter; but only mention, that in Denmark, where the contagious distemper is become naturalised and general, the Danish Government have not only wisely adopted the orders and regulations issued in Great Britain, but have with unwearied application pursued the practice of inoculation. Count Bernsdorff and Dr. Struensee had all the necessary instructions, books and papers, delivered to them by me, when the King of Denmark was in England; and I am assured by Daniel Delavul, Esq., lately His Majesty's Envoy Extraordinary at that court, that inoculation is approved, recommended, and by authority established. Even in the first three years that inoculation was practised, of near 300 head of cattle which were inoculated in a Danish island, not a sixth part were lost, notwithstanding the many disadvantages which unavoidably occurred.

Professor Camper had before attempted to introduce inoculation in Holland;

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* By the last half-yearly return from Holland, the number of infected cattle was so small, that it was hoped no further return to the States would be necessary.

but the learned professor's abilities, diligence, and perseverance, were so much counteracted by the obstinacy and interruption of the peasants, the badness of the situation, and inclemency of the weather, that out of 112 only 41 recovered; and yet that number is fully sufficient to prove his opinion of the disease, and of the use of inoculation.

Application was made in 1770 to the Lord President of the Council by a famous inoculator, for leave to take matter from the infected beasts in Hampshire, and to inoculate the cattle in the southern and western counties of England: on a representation to his lordship that by such an operation the contagion would not only be introduced in those counties where it had not yet appeared, but also might spread the sickness so as to become general all over the kingdom as before, a positive and strict injunction was given to drop the intention; especially as by killing the cattle there was no doubt of extirpating the contagion out of Hampshire. The inoculator therefore made no attempt.

According to the several prejudices of different countries, various opinions have arisen of the nature of this sickness. Such as are averse to inoculation have obstinately refused to acknowledge it was similar to the small-pox in the human body, and have very idly asserted that the only intention of declaring the contagion to be a sort of small-pox was purposely, and with no other view than to promote inoculation for the small-pox. Others have positively declared it to be a pestilential putrid fever, owing to a corrupted atmosphere and arising from infected pastures; but unfortunately for the supporters of this opinion, while the contagious distemper raged with the utmost violence on the coasts of Friesland, North and South Holland, Zealand, and Flanders, there was not the least appearance of it on the English coast, from the North Foreland to the Humber, although the coast and climate are the same.

I shall not dwell on Mr. Turberville Needham's elegant discourse read at Brussels, since he must have been convinced, when he came to England in 1776, that the illness was of another sort than he imagined; for such a proof of inefficacy of salt recommended by him as an antiseptic in this disease, has been given as is positive and decisive, namely, that in Scania, a province in Sweden, where it is customary to place a large piece of rock salt, called *salt-stein*, in water, for the cattle housed to drink, all the cattle in that province were seized with the contagious distemper, and not one outlived it. Mons. Paulet, in his 'Recherches sur les Maladies Epizootiques,' vol. ii., p. 25-26, Paris, 1776, has sufficiently explained Mr. Needham's opinion.

M. Bergius had insisted that the contagion was not of the exanthematous sort, and therefore inoculation must be of no use; but this opinion was also fully refuted by the late Professor Erxleben, of Gottingen, in his learned oration on the 20th of October, 1770.

From every information, domestic or foreign, and comparing the several opinions, experience and observation plainly and completely determine the dispute. The disease among the horned cattle, so fatal in many countries, is not endemial or natural to Europe, although it is become so in Denmark from spreading all over the Danish dominions, and its long continuance in that kingdom. It is an eruptive fever of the variolus kind,* and notwithstanding the exanthemata, or pustules, may have been frequently overlooked, yet none ever recovered without more or less eruption or critical abscesses; but these differ from the pestilential sort; no otherways similar to the Plague, but, like unto the small-pox, it is communicated by contact, by the air conveying the effluvia which also lodge in many substances, and are thereby carried to very distant places. Unlike other pestilential, putrid or malignant fevers, it bears all the characteristic symptoms, progress, crisis, and event of the small-pox; and, whether received by contagion or inoculation, has the same appearances, stages, and determination, except more favourably by inoculation, and with this distinctive and decisive property, that a beast having had the sickness, naturally or artificially, never had it a second time.

Thus, Sir, I have endeavoured to lay before you and the Royal Society the result of my inquiries, experiments, observations, and correspondence concerning this calamitous sickness, which from my situation in Huntingdonshire in 1756, it fell to my lot to investigate.

Dated, Lower Brook Street, April 8, 1780.

From Holland the disease penetrated Austria and French Flanders, reaching Laon, and it is recorded that in the provinces of Artois and Picardy 11,000 animals died. Paulet says, scarcely had Flanders and Picardy repaired the loss of their cattle, than in 1773 the Murrain manifested itself in Hainault, and with renewed vigour in Holland. The epizootic destroyed the cattle of Flanders, Picardy, Soissons, and Champagne, but the loss, says Delafond, was not estimated at this period. From the year 1740 the south of France was spared by the Bovine Pest; but in the month of August, 1774, it broke out on the borders of the ocean at Bayonne and its environs, and almost exterminated the cattle of many French provinces. The number of animals that succumbed reached 150,000, and these were estimated in value at 15,000,000 francs.

The contagious typhus followed the Austrian troops into

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* In a letter from Mons. Vicq d'Azyr to Dr. Layard, dated Paris, August 28, 1780, is the following declaration: "Il me paroît comme à vous que c'est toujours la même maladie qui a régné depuis 1711; et qu'elle a de grands rapports avec l'éruption varioleuse."

Lombardy in 1793; at the end of which year it entered Piedmont, continued through 1794 and 1795, and Buniva relates that in three years Italy lost from 3,000,000 to 4,000,000 head of cattle. The cause of the Piedmontese outbreak was attributed to the coalescence of the Austrian and Sardinian armies. The malady, spreading at this time throughout Italy, continued in that country until 1801. The movement of the Austrian army in marching to Hesse Darmstadt, Nassau, and the Rhine, carried the disease to Bavaria, Würtemberg, the Grand Duchies of Baden, Hesse, and Nassau. In 1796 it broke out amongst cattle in the escort of the French army on the borders of the Rhine, and as its contagious character was unknown—or, if known, unheeded—the malady spread with fearful rapidity to all the horned beasts of the Lower Rhine provinces. It entered Switzerland and returned into France by Burgundy, reaching near to the gates of Paris. In the circle of the Lower Rhine alone the mortality amounted to 11,047 and in the twenty-seven departments of France to which it spread, 130,000 animals died, their value amounting to 12,000,000 francs. Faust* calculated that from 1713 to 1796, 10,000,000 head of cattle perished in France and the above-mentioned parts of Belgium.

During that ever memorable period in history, from 1792 to 1815, when war and rebellion were accompanied by misery and famine, pestilence was one of the calamities which befell man, and the Cattle Plague—constant associate of wars in which the Russians or their near neighbours took part—broke out. It spread through the Danubian Principalities to the south of Germany in 1795-96, and continued its devastations here and there uninterruptedly up to the year 1801. Walz wrote on it as it occurred in Wurtemburg;† Will observed it in Bavaria; Keith and Schaller in the vicinity of Erlangen. From the Grand

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* 'Feuille du Cultivateur,' No. 28, page 173. 1797 and 1798.

† Walz, 'Untersuchungen über die Natur und Behandlung der Rinderpest.'

Duchy of Baden it entered Switzerland. The ravages it created, and the misery it induced in various regions of Austria, Bohemia, Saxony, Prussia, Poland, Hungary, Silesia, and France, are beyond description. A few years of respite were, however, at hand, for whilst the operations of war were in a great measure confined to the west, the Plague returned to the Russian Steppes; and in 1806, when the Cossacks of the Don, in obedience to an urgent appeal of Alexander, mustered on the Vistula, the malady spread from the desert lands into the agricultural districts of Lithuania, Prussia, Silesia, and Kurland. Napoleon's retreat after the battle of Eylau favoured the spread of the Contagious Typhus, and it prevailed in the above and adjoining provinces for two entire years, almost exterminating the cattle. When the grand army advanced to Moscow, and penetrated the heart of Russia to meet with defeat and famine, all conditions favoured the extension of disease and the spread of pestilence. In 1813-14, when the allied forces under Schwartzenberg invaded France, the Rhine provinces, Switzerland, and France suffered immensely from the losses occasioned by the Contagious Typhus. Stringent sanitary measures—slaughtering diseased animals and isolating healthy ones—soon arrested its fatal march, and until 1827, no more was heard of the typhus in the western half of Europe.

The wars in Europe and Asiatic Turkey were carried on with such vigour, that the call on the people in Western Russia and the Danubian Principalities for labour and provisions exhausted all internal resources, and was a fruitful source of disease both in man and beast. The repeated invasions of Turkey led to extensive demands for cattle in the Principalities. The Russians had, however, passed the Pruth; General Geizmar reached Aluta, and his Cossacks had penetrated Little Wallachia without opposition. As a consequence, the Sultan obtained only 500 head of cattle and 1000 sheep from Wallachia, whereas Moldavia yielded nothing. "The Russian declaration of war, however, was accompanied by a demand for 250,000 loads of corn, 300,000 tons of hay, 30,000 barrels of brandy, and 123,000 oxen, in addition to the forced labour of 16,000 peasants, who were to be employed in making hay on the banks of the Danube. The loss occasioned by the payment for these requisitions in bills instead of cash was not the only disadvantage to which the unfortunate people were immediately exposed; for as the local supplies were soon exhausted by such an army, it became necessary to transport provisions from Bessarabia, by means of forced labour. The peasants, also, soon exhausted their own supplies, and were reduced to such extreme want in consequence, that they died in great numbers in the wood, as did also their cattle, in consequence of a Murrain. The serious extent of the disease covered the roads with carcasses, which by their putrefaction, coupled with the want of cleanliness in the Russian soldiers, gave rise to Typhus Fever in its very worst form—that of the Plague. This fearful scourge first appeared at Bucharest, and it continued to afflict the Russian army, as well as the inhabitants, during the whole of this and the succeeding campaign."*

Bessarabia, Wallachia, and Moldavia, were not the only provinces over which the Cattle Plague extended, producing such terrible disasters, but it again found its way into Podolia, Volhynia, and thence to Prussia, Saxony, Hungary, and Austria. The losses continued great for some time, notwithstanding all efforts to check the disease; and in 1830 it appeared in several parts of the Austrian territory, especially in Illyria. At this period excellent memoirs were published on the Contagious Typhus, especially by Lorinser † and Jessen.‡ For three years, from 1828 to 1830, Southern Russia suffered much from Rinderpest, and it continued to break out here and there in the Steppes and adjoining districts, but so long as the indigenous cattle only were affected, deaths were comparatively rare; so soon, however, as the herds of Austrian cattle, belonging to German colonists, were attacked, not even ten per cent. survived. At all times the German colonists suffer from this scourge; their cattle are infected by the herds employed to carry salt from the Crimea, and the Steppes of saline base between the Caspian and the Baltic, which are supposed to have once formed a bottom for the waters when these two seas were united. The German colonies which thus suffer are in Moloshna and in the vicinity of Mariopol. It is said that in these colonies the neat cottages, and the well-built barns and out-houses, surrounded by trees and gardens and by highly-cultivated fields, bear the signs of wealth and comfort, and of the care bestowed on them by an industrious population. The German colonies form a striking contrast to the dreary country in which they are situated, and to the miserable Russian villages, and the still more wretched Tartar aouls around them. Their situation is always well chosen on some sloping ground, on the border of one of the few rivulets that water the country.*

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* Colonel Chesney, 'The Russo-Turkish Campaigns.' London, 1854.

† Lorinser, C. J., 'Untersuchungen über die Rinderpest.' Berlin, 1831.

‡ Jessen, J., 'Die Rinderpest mit besonderer Beziehung auf Russland dargestellt.' Berlin, 1834.

My object in referring to these features of the German colonies is to point out the interesting fact that, although surrounded by Steppe land, the colonists and their cattle exist under very different conditions to those common to the habitations and the herds of the Cossacks, the Tartars, and the Calmucks; and although, as I shall hereafter show, the cattle of the Steppes, accustomed to hard living, withstand the Steppe Murrain, it is no special breed that presents this immunity from disease, but animals in general reared in the most primitive manner, and somehow rendered constitutionally able to ward off all injurious influences.

The Cattle Plague passed into Poland during the war, spread into Courland, and found its way into Prussia, where it reached its greatest height in 1832. Flerow describes an epizootic in the Steppes of Russia under the Calmuck name Malik, which created great havoc in Eastern Russia from the years 1833 to 1835. According to Knolz the Rinderpest proved very deadly in Moravia and Hungary in the last named year. In 1836 it broke out in Lower Austria, and passed from Bosnia into Dalmatia. It again proved severe in Moravia and Hungary in 1837, and some cattle shipped from Dalmatia to Barletta in the Neapolitan states communicated the disease to Southern Italy. The Dalmatian cattle proved diseased on landing, and 70 of them soon died, spreading the malady to native stock. This outbreak was attributed to change of climate and pasture, and to the salt water the animals had been compelled to drink on the voyage, coupled with other causes, such as fatigue and disturbance. It was thought advisable to change their pasture; they were therefore removed to Capitanata near Foggia. There the disease followed them, and attacked some buffaloes. They did not however suffer much, but they communicated the malady to other cattle. From Capitanata the pest spread to the provinces of Bari and Taranto. De Nanzio confirmed Lancisi's statement, that although the malady attacked the buffalo it was not so malignant in that animal as in the domestic ox; and he also states that for three months the people of the Puglia ate the flesh of animals which had died of Rinderpest without showing the slightest indication of sickness or suffering.

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* H. D. Seymour, M.P., 'Russia on the Black Sea and Sea of Azoff.' London, 1855.

The next account of a special attack of Contagious Typhus is to be found in the twelfth volume of the *Bulletin of the Academy of Sciences of Paris.* It is spoken of under the head Typhus; and, as Hering and others have shown, this outbreak was one of the ordinary Russian pestilential fevers which affects cattle. Towards the end of the year 1841, a ship going from Caramania in Asia Minor, to Alexandria, lost one hundred out of two hundred oxen which constituted its cargo. These animals, as Renault has shown from official documents, were Steppe cattle from Moldavia as well as oxen from the interior of Anatolia and Caramania. On the arrival of the ship at Alexandria, the remaining animals were declared to be affected. In order that they might be more effectually treated, they were landed, and driven to a village close at hand, with orders that they should be kept in strict quarantine. This injunction was not attended to in 1842; consequently, the Plague broke out amongst the Egyptian cattle; and the proprietors, in order to get rid of the affected beasts, drove them to the important market of Tantah, a village in the Delta. This unwise expedient spread the contagion, and in a short time the Plague covered the whole of Egypt. Its stay was, however, brief; for in the spring of 1843 it disappeared, most of the animals having been destroyed. Towards the close of the same year large numbers of cattle passed from Nubia into Egypt, especially towards Ghizeh, where the pestilence had committed the greatest havoc. The disease, which had perhaps not been completely extinguished in the spring, broke out again, and destroyed every animal attacked, notwithstanding that many precautions were taken. Buffaloes were also attacked. Ninety per cent. of the entire herds of Egypt caught the contagious fever, and the losses in 1842 amounted to 300,000 head; on the second invasion in 1843, to 35,000; and on the third, 15,000—that is to say, in three years 350,000 head of cattle fell a prey to the malady.

Dr. Pruner, in his work on the Diseases of the East, describes the attack of the Cattle Plague in Egypt. According to Dr. Pruner, it broke out amongst oxen which were taken from Adana and Stursus, in Syria, into Egypt; and the chief cause of the outbreak is believed by that writer to have been the use of improper food, especially deteriorated and unwholesome beans; while, at the same time, the animals were cooped up and crowded to an unjustifiable extent. Hering considered it most probable that the real cause was the contact of these animals with others affected by Contagious Typhus. No weight can be attached to Dr. Pruner's theory as to the cause of the disease, from the fact that similar erroneous views are constantly set forth regarding fresh outbreaks of the Plague.

In the autumn of 1844, the Cattle Plague threatened many of the countries adjoining Russia. From official reports, we find that it spread to Bohemia in September of that year, first penetrating Königsgratz and the circle of Bidschow, where an extensive trade in cattle is carried on. Veterinary surgeons in Bohemia recognized the disease, and their observations led them to regard it as the true Fever of the Steppes. Medical authorities at Prague argued that the pestilence had arisen spontaneously in Bohemia from a combination of causes, analogous to those which had given rise to typhoid diseases and similar epizootics in man; this view having been accepted by Government—it being supported by Nadherny and others—as the right one, was the cause of much laxity in the adoption of sanitary measures. Meanwhile the Plague extended rapidly throughout the whole of Bohemia, the sixteen districts of this kingdom having been completely invaded. The whole of the countries of Western Europe were now alarmed at its fearful advances. Dr. Eckel, director of the Vienna Veterinary School, repaired to Bohemia to make investigations into the real nature of the then existing malady. He found that it was without doubt the "Rinderpest;" which could never have arisen from unfavourable weather or any combination of prejudicial influences of local origin, such as deteriorated food, development of miasmata &c.; but that it absolutely depended on the extension of disease from the Steppes, which of itself would account for the enormous mortality amongst the cattle. Galicia at this time suffered in consequence of the importation or transit through it of oxen from Podolia and the adjoining Prussian provinces. From all appearances it may be conclusively admitted that the malady originated in Bessarabia. During the first half of September, it spread from Galicia into Moravia. One after another, it attacked twenty-four districts, throughout which 1065 animals caught the distemper, and out of the whole only 163 recoveries were reported; of those that died, 129 were slaughtered. Instances of the disease were observed only in a few districts of Hungary, but the symptoms presented by the cattle were without doubt those of Steppe Murrain.

In the south of Austria some cases appeared as early as the first half of October 1844. From this time to the 15th of December of the same year, the entire deaths were confined to three districts; this in all probability depended on the fact that as soon as the disease was recognized as the veritable Cattle Plague by delegates from the Vienna College, appropriate measures to stop its progress were speedily suggested and carried into execution. According to Eckel's investigations during his stay in Moravia, 5224 head of cattle from Podolia were bought at the market of Ollmüz by thirty-two merchants, and they constituted 119 lots, which were driven into Bohemia; of these, 5008 travelled on the high road to Prague, and the others were driven in various directions. The outbreak of the disease in Bohemia occurred in different parts, corresponding to the directions in which it was afterwards ascertained the cattle had been driven. In conformity with the opinions of Eckel, orders were issued in Prague on the 6th of December, that certain sanitary measures should be stringently carried into execution. From this time the Plague speedily diminished in virulence and extent, so that towards the end of January 1845 it was considered as having completely disappeared from the Austrian empire.

On the 19th of January, 1845, a statistical report was drawn up, indicating the losses sustained in Bohemia by the ravages of the Cattle Plague, and the result was, that on the whole, 2197 animals had been infected, of which 115 had recovered, 1122 died, 945 had been destroyed, and six were still on the sick list.

From 1849 to 1851, various parts of Austria suffered from invasions of the so-called Contagious Typhus of Cattle, and the professors at the Veterinary College of Vienna were called upon to keep up a correspondence with persons qualified to institute inquiries and collect information in those places where it was reported the pestilence raged. As the disease advanced, and as local authorities were opposed to enforcing rigid sanitary measures, Dr. Eckel and Dr. Röll proceeded in different directions, with the object of making such arrangements as would best tend to check the disease, and in this manner, the first-named gentleman accumulated materials for an extensive and remarkably accurate Report on the history of the Plague from 1849 to 1851. This Report is published in the *Quarterly Journal of Veterinary Science* of Vienna for 1851, and is so very suggestive, that I do not hesitate to draw largely from it for the benefit of my readers.

On the third of January 1849, the Galician Government was informed by Dr. Goldschmidt of Brody—a frontier town of Austrian Galicia which has trade with Russia, Poland, and Turkey—that he had heard from two travellers that in the summer of 1848 the Cattle Plague had spread extensively over Russia, and that during the winter months it had passed into Podolia, Volhynia, and Poland, having thus reached the Galician frontier. Custom-house officers and other authorities on the confines were instructed to report on the real facts, but they were so ignorant of them, that it was even proposed to abolish the ten days' quarantine already imposed on cattle imported from Russia. The Russian authorities in Volhynia, however, confirmed the statements of Dr. Goldschmidt, and it was ascertained that fifteen villages of the last-named province were devastated by the Murrain. The quarantine for cattle brought from various infected districts was increased to fifteen days. It was reported by the Galician Government on the 5th of April that the Plague had appeared in the district of Zloczow, bordering on Volhynia, and that on the 20th of February it had shown itself in the little town of Radzichow. A veterinarian, Josephu, was sent to investigate the matter, and he stated that in the month of January the Murrain had appeared at Barytow, Wygoda, and Podmanasterek, all on the frontier. It was said that at Barytow it was not the true type of Cattle Plague which had broken out, but respecting the two last mentioned places no reliable statements were furnished. Josephu suggested that the importation of cattle into those districts should cease, that the fact of the outbreak of the Murrain should be made generally known, that a strict inspection of animals in every part of the country should be instituted twice every week, and that further tidings should be collected respecting the state of the Plague in Russia.

The Professors of the Vienna Veterinary College were indebted for the above information to the Minister of the Interior, and weekly Reports were furnished with great regularity. In the year 1849 four circles and twenty-five communities were infected in Galicia. Information of the spread of the Murrain was also obtained from Transylvania. It was also ascertained that from the movements of troops, the disease had been carried into that province as early as the beginning of August, and, in consequence of the war, had extended itself over the greater part of the province by the end of December.

On the 4th of March 1850, the Galician Government announced the outbreak of a typhous dysentery among the cattle in the district of Zolkiew, and further information from consuls and agents disclosed the appearance of the true Plague in Wallachia, Bessarabia, Podolia, Volhynia, and Poland. Satisfactory reports were, however, received from Moldavia, and the governor of Transylvania reported that on the 25th of March the pestilence had been completely stayed in several districts.

On the 5th of April intelligence reached Vienna of fresh outbreaks in Galicia; but on the 8th of June the malady had almost entirely subsided, only seven animals being at that time affected. Transylvania was also clear of disease, but a district on the Moldavian frontier began to suffer, and the greater part of the province was quickly overrun. On the 8th of August Dr. Eckel, Director of the Vienna Veterinary School, with another veterinarian, Dr. Langenbacher, proceeded to Hungary, to the Banat—that portion of South Hungary between the Maros and the Danube—and the Vayvode, where the Contagious Typhus had made great havoc, with the view of instituting investigations, and prescribing remedies. Professor Röll undertook a similar mission to Cracow, as the Murrain had extended far into the countries on the borders of the Vistula, and was therefore approaching the Moravian frontier. On the 6th of August some cases of "Rinderpest" had been observed near Vienna in two herds of cattle coming from Hungary. These herds had on their road been brought in contact with cattle leaving the pastures, so that in Riegelsbrunn, in Simmering, and in the Vienna cattle market, nine oxen died, showing unmistakeable symptoms of the "Steppe disease." Professor Hayne was empowered to enforce sanitary measures at Wolfsthal and Riegelsbrunn, where the disease had broken out. Professors Müller and Pillwax, Bruckmüller and Brühl, were all actively co-operating either in or near Vienna, or at a distance.

By no body of veterinarians were the features of the Contagious Typhus so well studied, and the progress of the malady so ably followed, as by the learned Professors whose names have just been mentioned. The details of the origin, progress, and extension of the Murrain through the Austrian dominions from the month of January 1849 to March 1851, have been recorded by them with the greatest exactitude. I repeat what I have said before, that accurate historical notices are most difficult to gather, but when obtained most instructive to peruse, especially when referring to such a disease as the Cattle Plague —a disease which, by the use of proper means, may be prevented, but, when once fairly developed may generally be regarded as incurable.

In 1849, for the eighth time during the present century, Austria was invaded by the Plague, the malady breaking out at two distinct points on the eastern frontier of the empire. It spread from the north-west, and this may be called the Volhynio-Galician line; and from the south-west, or in the Wallachio-Transylvanian line. The first line of communication extended to lower Austria, the countries on the Danube, and the Leytha—and the second or Wallachio-Transylvanian crossed the level country of Temesvar, the town of Baja, Zombor, Stutlweissenburger, and into the district of Oedenburg, where the malady halted on its deadly march.

The Austrian dominions were not quite clear of typhus until after March, 1851. A very interesting pamphlet on the Rinderpest in Kamionka Woloska, in Galicia, was published about this time by Dr. Weber. A farmer had bought at the market in Olaszkowce (in the circle of Zalsczik, on the Russian frontier) 101 oxen which came from Bessarabia. The whole herd appeared healthy, but *eight days after the purchase*, one animal was taken ill, and the symptoms consisted in loss of appetite, diarrhœa, and discharge from the eyes. It had only been three days amongst the other live stock of the farm, but seven days later, two animals which had been standing near the diseased one, took the malady, and one of them, a cow, died on the third day from the time she was first observed to be ill. The disease spread through the farm and adjoining portions of the village of Kamionka, so that on the 18th of August 1851, one month after one of the cows of the places had become affected, 25 beasts were seized with the Plague; on the 25th of August, 56 animals were affected; and by the 28th of September, 158 head of cattle suffered from the distemper. Of these 93 died and 65 were cured. It is most interesting to note, that of the imported herd only one animal suffered, the disease spreading from it to other beasts on the farm and in the village.

The Cattle Murrain was almost confined to Russia through 1852 and 1853. It raged, however, in Hungary, and led to severe restrictions on the cattle trade in that portion of the Austrian dominions. It was singularly fatal in the south of Russia during the summer of 1853, and it has been specially described in a Russian medical journal of that period. It was observed on one estate during intensely hot weather, when even sheep died of the Siberian bubonic pest; great mortality also prevailed amongst swine and birds. The disease in its most dangerous form lasted but eight weeks on this estate.

From the month of October 1853 to April 1854, the Steppe disease can be clearly traced into Galicia through Moravia, Bukowina, Silesia, Bohemia, Lower Austria, and Hungary. The first signs of a pretty general outbreak were observed on the 4th of October in the circle of Przemysl at the village of Bucow. Some fat cattle from Poland, stationed at Bucow for the purpose of being fed and rested, carried the disease with them. The neat stock of a farm at Starrawa was grazing on some pasture land at Bucow, when the animals became infected. Hides were bought at the last-mentioned place and taken to Lackawola, and thus the contagious element was transported, and the disease communicated, either directly or indirectly, to the cattle of fourteen villages.

At this time, Lord Berners drew the attention of the Royal Agricultural Society of England to the outbreak, and the British Government instituted inquiries through the Foreign Office, which led to information being received in this country as to the measures adopted to counteract the disease on the Eastern frontier of Prussia.

In the early part of 1855 the Rinderpest proved very destructive in Russia. From thence it passed to Poland. By the month of September, however, it had completely disappeared from the Grand Duchy of Posen, where it had been very rife, and at the commencement of 1856 the orders against importation instituted by the Prussian Government for the Grand Duchy of Posen were withdrawn.

During the height of the Crimean war in 1855 the French and British Governments were recommended to stop the supplies of fresh meat to their respective armies, as the cattle of the Steppes were dying of the Murrain. Preserved meat in large quantities was sent from Great Britain to the Crimea. This was regarded as a good and wholesome substitute; but it is feared the reprehensible practice of pickling the carcases of beasts which died from disease prevailed to a great extent; indeed it is recorded that many tons of such vile food were shipped from Aberdeen for the Crimea. There was no one with sufficient authority and adequate knowledge to check these vile operations and bring the purveyors, who thought *anything would do for the soldiers*, within the pale of the law.

Mr. Mayer, Veterinary Surgeon to the Royal Engineer Field Equipment, says in the *Veterinarian* for April 1861, that about the end of August 1855, the Murrain "was destroying immense numbers of cattle in Asiatic Turkey." "By degrees," adds Mr. Mayer, "we heard of its nearer approach; and as it was just at this time that we were purchasing bullocks, and, knowing that they had been driven some 600 miles from the interior, we became doubly cautious in our dealings. The French, who were also purchasing about the same time as ourselves, and whose camp was a few miles from ours, first received the contagion. I was very suspicious about a lot which we bought the week following, and which I wished, consequently, to have rejected; but we were obliged to have them, and in a few weeks the disease made its appearance in our camp also." The *Times* correspondent wrote from the Crimea during the campaign stating that "on all sides between the torn tents, dead cattle are rotting, and no one thinks of removing the pest-bringing carcases."

In the city article of the *Times* of the 12th of February 1857, it was stated that "advices from Königsberg give unfavourable accounts regarding the cattle disease, which during the past two years has manifested itself in Poland, and other parts of Russia, and which now threatens to spread to Germany. For a short time during last autumn, there seemed to be some abatement in the distemper, but it has again become very virulent."

On the 27th of February, 1855, the spread of the disease attracted the attention of the British Parliament. Information was sought for and obtained from foreign consuls, one of whom announced the existence of the malady in Mecklenburg. This was evidently an error, as the Steppe Murrain did not extend so far into Germany, and was confined principally to the Austrian provinces.

The following letters were received at the Foreign Office:—

Warsaw, March 9, 1857.

My Lord,—I have the honour to report to your Lordship that the Cattle Disease, which has caused such ravages in the farms of the landholders in this kingdom, is still prevalent, although not, so far as I can understand, so much so as it was during the autumn. Within the last fortnight a gentleman of my acquaintance lost nearly every beast he possessed in the neighbourhood of Warsaw. The infection is so virulent that it is said a farm servant, who has been in attendance on sick cattle, may carry it in his clothes and impregnate other beasts with the fatal distemper. The measures adopted to stop the spread of the disease are very summary, the most indiscriminate slaughter of the beasts affected being ordered and carried out. In Prussian Poland, where a more stringent execution of these measures has been enforced than has been the case in this country till a late date, it is said that the evil has been nearly, if not wholly overcome. I am not aware whether an exportation of cattle takes place from Dantzic for the British ports. If there should be such a trade, it might be advisable to subject all beasts imported either from that town or Königsberg to a lengthened quarantine, as there seems to be no doubt that the disease occasionally breaks out in herds some time after they have been domiciled in their new quarters. The disease originally comes from the Steppes of the Ukraine, whence vast numbers of cattle are yearly driven westward. It would appear to commence with violent fever, which rapidly degenerates into acute dysentery, the animal dying, in a few days after the first appearance of the disorder, of intestinal ulceration.

I have, &c.,
(Signed) W. W. Mansfield.

The Earl of Clarendon.

British Consulate, Königsberg, March 11, 1857.

My Lord,—I have the honour to acknowledge the receipt of Lord Shelburne's despatch No. 2, of 7th of March, and to report that since 1854 rumours of a Murrain or Cattle Plague in Volhynia and Podolia were current, and that since that time the disease has been advancing in a northerly and westerly direction, and that most distressing accounts have been received of the ravages amongst the cattle, and of the disease spreading till close upon the Prussian frontiers. The Prussian Government, during the years 1855 and 1856 took great precautions to prevent the disease from entering Prussia, by detaching parties of military at all the points of egress from Poland below Thorn. In the autumn of 1856 until now, the disease has continued its march, and at last reached Kowno and Tauroggen. The Prussian Government has now enforced most stringent measures all along the borders; and no hides, calf-skins, wool, rags, or any article which is likely to have been in any way connected with cattle, and all Jews and other persons who are in any way suspected of having transactions with cattle, or any of those articles, are permitted to cross the borders, and when any such attempt is made the articles are immediately burned. By these means the disease has, up to the present time, been kept out of Prussia, and the greatest vigilance is observed to destroy and bury any animal when a suspicion of infection exists. The dealers have for some time past avoided the Prussian route and take their goods to Russian ports, particularly to Libau, for shipment; and Russian hides and calf-skins, which formerly went through the Prussian ports, all go that way now. I may add, that the hide and calf-skin export, which was formerly of great magnitude, to Great Britain has now taken a different channel. The skins go now almost all to Lübeck, and from thence to Frankfort-on-the-Maine; or to Stettin, and from thence to Berlin, &c.; and it is not impossible that the infection may be carried to the heart of Germany by these means, although the precautions of the Prussian Government may have warded it off from the eastern frontiers. I have never heard that live cattle have been shipped from the Baltic ports. The disease is reported to be a violent purging and sudden death.

I have, &c.,
(Signed) W. J. HERTSLET.

The Earl of Clarendon.

An alarming Report was forwarded by Lord Bloomfield from Berlin, bearing date the 25th March, 1857. Writing to Lord Clarendon, he said—"I regret to have to inform your Lordship that the Cattle Disease has appeared in the neighbourhood of Berlin. Every precaution was supposed to have been taken to prevent its arrival in the Prussian States, and measures have now been adopted to endeavour to arrest its progress. Having alluded to the subject this morning in the course of conversation with Baron Manteuffel, his Excellency read to me a communication which he had just received from Monsieur de Raumer, stating that the disease had been traced to some cattle lately arrived from Gallicia, and that those which had not died had been killed by order of the magistrates; and that further, all the cattle known to have been in contact with them had been destroyed. Baron Manteuffel appeared to be under considerable alarm that the disease would reappear, notwithstanding the precautionary measures and the utmost vigilance of the authorities."

A meeting of the Royal Agricultural Society was held on the 1st of April, 1857, when the above Reports and other accounts of the Plague were read. The Council agreed to the subjoined resolutions:—"That it is expedient to send a competent Veterinary Professor to examine into the nature of the Cattle Murrain on the continent. That the Society gladly accepts the co-operation of the Highland and Agricultural Society of Scotland, and the Royal Agricultural Improvement Society of Ireland, in this step. The Society ventures to recommend that Professor Simonds, of the Royal Veterinary College, be commissioned to this task. That he be empowered to take with him a German Veterinary Surgeon, established in London, quite competent for the business, and who would smooth the difficulties of the German language. It is supposed that about three weeks would be required for a satisfactory examination. That the Highland and Agricultural Society of Scotland be informed that the Royal Agricultural Improvement Society of Ireland propose to share the expense of this missive with the Royal Agricultural Society of England; and that they be asked to join in the same manner."

Professor Simonds and Mr. Ernes were afterwards requested to proceed to the Continent, to study the disease, and trace its origin.

Meanwhile the Government issued the following Order in Council:—

ORDER IN COUNCIL.

(*From the Supplement to the London Gazette of Friday, April* 3.)

At the Court at Buckingham Palace, the 22nd day of April, 1857.
Present the QUEEN'S Most Excellent Majesty in Council.

Whereas it has been represented to Her Majesty that certain contagious or infectious disorders are now prevalent among cattle in certain countries or places bordering upon the Baltic Sea, and that there is danger of the said disorders being introduced into this country by means of cattle, and horns, hoofs, and raw or wet hides or skins of cattle from such countries or places; now therefore, Her Majesty, by and with the advice of Her Privy Council, doth order, and it is hereby ordered, that from and after the date hereof no cattle and no horns, hoofs, or raw or wet hides, or skins of cattle shall be imported or introduced into the United Kingdom which shall come from or shall have been at any place within those territories of the Emperor of Russia, or of the King of Prussia, or of the Grand Duke of Mecklenburg Schwerin, which respectively are in or border upon the Gulf of Finland, or any other part of the Baltic Sea between the Gulf of Finland and the territories of the Free City of Lübeck, or which shall come from or shall have been at any place within the territories of the Free City of Lübeck; and also, that from and after the date hereof, no cattle and no horns, hoofs, or raw or wet hides, or skins of cattle, shall be imported or introduced into the United Kingdom which shall be, or shall have been, on board any vessel at the same time with any cattle or horns, hoofs, or raw or wet hides, or skins of cattle, which shall have come from or shall have been at any such place as aforesaid.

And Her Majesty, by and with the advice of her Privy Council, doth hereby further order, that all cattle, and all horns, hoofs, and raw or wet hides, or skins of cattle, the importation or introduction whereof is so hereby prohibited as aforesaid, and also all hay, straw, fodder, litter, or manure, being or having been in or on board any vessels at the same time with any such cattle or horns, hoofs, or raw or wet hides, or skins of cattle as aforesaid, shall upon their arrival in this country be destroyed, or otherwise disposed of, as the Commissioners of Her Majesty's Customs may direct.

And the Right Honourable the Lords Commissioners of Her Majesty's Treasury are to give the necessary directions herein accordingly.

C. C. Greville.

On the 11th of April, Dr. Headlam Greenhow addressed a letter to the Right Hon. W. Mansell, M.P., President of the

General Board of Health, announcing that the disease had "been conveyed into Silesia, in the neighbourhood of Breslau and Oppeln, by means of diseased cattle, said to have been purchased in Galicia, but has not spread into any other Prussian province ; and has, in fact, thus far been confined to the oxen of the infected herd. Most effective measures have been taken to arrest the disease, and judging from the experience of last year, there is every reason to hope that its propagation will be prevented and its extinction secured."

In the Hamburgh *Börsen Halle* for the 25th April, a Report, dated Berlin the 24th, appeared, to the effect that the Rinderpest was making great ravages towards the Carpathian Mountains, and that troops had been sent to arrest its progress, establishing, in fact, a military *cordon sanitaire.* The disease had not made its appearance in very many places* in Galicia, though only one district had remained free.

On the 30th of April the *Augsburg Gazette* published a paragraph announcing that the Cattle Plague had almost wholly disappeared from Middle Silesia, but still existed in several places of the upper part of the same province. Preventive measures were, however, still stringently enforced.

In the Hamburgh *Börsen Halle*, for Friday, the 8th of May, I find that in the district of Tost-Gleiwiz, in Prussian Silesia, the Plague was almost extinguished, but it continued in the aforementioned provinces, and the troops were still actively engaged in endeavouring to limit its ravages. On the 13th of May the *Börsen Halle* published news of the 8th of that month from Austrian Silesia. In the district of Teschen the Rinderpest was clearing out the stables. The preventive means resorted to considerably lessened the evil, the slaughtering of animals having been carried out without restriction. The loss sustained by the province must have been enormous, when it is considered that cattle brought a high price, that the markets were closed, and that the Polish herds were prevented from entering Austrian territory. On the 12th of May it was announced that the disease was at Lemberg, and the *Times* correspondent wrote from Vienna on the 16th: "The Murrain has made its appearance at Olschau, near Olmutz, where there is one of the largest cattle fairs in Austria. In two farms, seven animals fell sick, and five of them died; the other two were knocked on the head, as were three more which had a suspicious look about them."

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* The term "place," which I have been compelled to use so often, is a very unsatisfactory one. The only word which might have been substituted was "community;" but that word does not in reality mean the same thing, and is equally vague in its signification. A district is divided into several places, and a place is a collection of ten, or twenty, or even more farms.

On the 22nd of May, at a meeting of the Royal Agricultural Society of England, the secretary reported that Professor Simonds had forwarded his first communication on the 30th of April, and by it there appeared to be little doubt but that Pleuro-pneumonia had been confounded with the Steppe Murrain: the professor had to proceed to Poland before he could discover a case of the last-named malady. Professor Simonds and Mr. Ernes returned to England on the 30th of May, and a Report, based on Professor Simonds's observations, was forthwith published by the three Agricultural Societies.

On the 4th of November, 1857, it was ordered by the Queen in Council, "That all the prohibitions and restrictions now subsisting under the Order in Council of the twenty-seventh day of August, one thousand eight hundred and fifty-seven, on the importation or introduction into the United Kingdom from certain places in or upon the Gulf of Finland or the Baltic Sea, of such horns, hoofs, bones, and raw or wet hides or skins of cattle, hay, straw, fodder, litter and manure, as in the said last-mentioned order mentioned, shall on and after the date of the present order cease and determine."

Thus ended the panic of 1857.

In 1858 the Steppe Murrain raged with severity in Russia. It broke out in forty-seven Governments from 54° to 59° latitude by 37° to 83° longitude. In Astrachan the disease was communicated by sick cattle and their carcases. In Bessarabia it was ascribed to climateric changes; in the Government of Witebsk to herds of Ukraine oxen driven through the country, the dead animals having been left unburied by the road side. Careful inquiries concerning the origin and spread of the disease in the Vladimir Government indicated its dependence on the importation of hides from the Southern Governments, and on the through traffic of herds of cattle. In the Volhynian Government the plague was proved to be due to the purchase of diseased stock and the distribution of fresh hides, tallow and bones. The malady broke out early in the spring in the Viatka Government, and was attributed to the cattle having been housed too closely, to keep them warm. In Grodno the Rinderpest appeared in March, and was proved to have been communicated by Volhynian oxen. The intense heat of the summer, insufficiency of food, and bad water, were inducements to the plague in the Ekaterinoslav Government, and a most instructive Report is given of the outbreak in Kaluga, which commenced by water used in washing salted beef having been given to some cattle to drink. Its further propagation was doubtless due to contagion caused by contact with sick cattle, and the bodies of dead animals not being properly buried. In many Governments the disease arose from traders in fish and salt from the Crimea driving their herds laden with these commodities through the country.

The statistics of the Russian Rinderpest outbreaks for 1858 are as follows:—

	Sickened.	Dead.
Bessarabian Territory	6,306	2,928
Government—Astrakhan	3,054	1,473
,, Vladimir	5,990	5,415
,, Vologda	837	823
,, Viatka	1,635	1,546
,, Volhynia	8,181	5,652
,, Wilna	284	190
,, Witebsk	781	725
,, Voronej	1,798	711
,, Ekaterinoslav	817	473
,, Grodno	448	384
,, Kieu	5,438	3,165
,, Kasan	3,582	2,717
,, Kaluga	2,354	2,182
,, Kostroma	485	125
,, Koursk	1,603	1,157
,, Kovno	929	829
,, Courland	484	458
,, Livonia	152	152
,, Minsk	3,008	1,784
,, Moscow	2,649	2,282
,, Mohileu	5,856	4,951
,, Nijnii-Novgorod ..	2,481	1,843
,, Novgorod	748	645
,, Orel	5,491	4,420
,, Orenberg	10,654	6,072
,, Penza	5,884	391
,, Poltova	12,743	6,846
,, Pleskau	490	482
,, Podolsk	3,659	1,881
,, Perm	639	156
,, Riazan	5,695	5,422
,, Smolensk	566	513
,, Saratov	8,261	4,132
,, Simbirsk	4,801	3,855
,, Samara	11,392	9,691
,, St. Petersburg	125	125
,, Taurida	1,848	643
,, Tambov	13,005	8,086
,, Twer	539	519
,, Tobolsk	1,875	1,536
,, Tomsk	199	98
,, Tula	1,829	1,261
,, Charkow	5,496	3,127
,, Tschernigon	22,576	15,579
,, Esthonia	..	450
,, Jaroslav	1,113	920
Total	178,690	118,315

On the 25th of July, 1860, Rinderpest broke out in the Bukowina and Galicia. It was imported from Podolia, having reached the Bukowina from Moldavia on the one side, and from Bessarabia on the other. The Plague appeared in 28 places in 7 circles, and out of 13,571 head of cattle in 217 infected stables, 1803 took the disease, of which 244 recovered, 707 died, and 52 were slaughtered. In some places the disease only lasted 21 days, in others as long as three and a half months. On the 7th of March, 1861, both Galicia and the Bukowina were declared free of Steppe Murrain; but seven days later the disease again showed itself in the Czortkowa circle in Galicia, having been imported by foreign cattle. It continued until the 16th of January 1862. Out of 11,341 head of cattle, 1679 fell ill; 1089 of those died, 464 recovered, 55 were slaughtered when sick, and 71 caught the infection.

The statistics of the Galician outbreaks for 1860-61 and 1861-62, up to the 16th of January of the latter year, show that out of 24,912 animals in the infected parts 2635, or nearly 18 per cent., took the disease. Of these 708, or about 26 per cent., recovered, while 1796, or 68 per cent., died; 107 sick animals, or 4 per cent., were slaughtered, and 24 remained sick on the 16th of January. In the month of October, 1861, the Steppe Murrain passed from Galicia into the Bukowina, and out of 5130 animals 273 took the disease, viz., 5 per cent; 82 recovered, amounting to 29 per cent. on the number of sick; 172, or 52 per cent., died; and 3 per cent. of the sick were slaughtered. Polish oxen carried the malady into Bohemia in the month of November, 1861. Of 1593 animals, 76, or 5 per cent., sickened; 39 died; 37 were slaughtered diseased, and 46 infected animals were also destroyed. During this outbreak, Dr. Maresch made his first observations on the Cattle Plague amongst sheep. Of 60 sheep in two infected stables, 26 became diseased, and of these 12 recovered, 10 died, and 4 were slaughtered. Professor Galamboz had witnessed similar occurrences in Hungary. Polish cattle also communicated the disease to Moravia, where out of 1553 animals, 41 took the disease, 1 recovered, 15 died, 25 were slaughtered ill, and 57 infected. In Lower Austria the Steppe Murrain entered from Hungary, and in two places it seized 36 animals out of 680—12 of these died and 24 were slaughtered—besides infecting 23 animals, which were killed. On the 18th of December, 1861, the malady appeared on the Hungarian frontier, at Bruck on the Leitha, but it disappeared on the 15th of January 1862. About this time the Rinderpest attacked 6 cows in the city of Vienna. Of these one died, and the rest were slaughtered. It also committed sad havoc in Hungary, seizing 15 per cent. of the animals in infected districts, viz., 9279 out of 59,648. Fifteen per cent., that is to say 1365, recovered, 75 per cent. died, and 9 per cent. were slaughtered, leaving 867 ill. In two districts the disease was so virulent that out of 4000 head of cattle 2500 died. Professor Galamboz of Pesth and Dr. Zlamal record that the disease also attacked sheep, and carried off from 25 to 30 per cent. of the infected flocks. In Siebenbürgen the Steppe Murrain was introduced through three channels, and up to the middle of January, 1862, out of 77,122 head of cattle 4586 were seized, 1638, or 64 per cent., died, and 13 were slaughtered.

In the month of September, 1862, the Rinderpest broke out severely amongst some Podolian oxen near the frontiers of the Prussian province of Oppeln. Several outbreaks were observed during the succeeding winter, within easy reach of the Prussian boundary, but very careful management served to restrict the malady to Galicia and Poland, where it continued for some time to be very severe.

The Polish Revolution seriously aggravated the dissemination of the Cattle Plague in 1863. This caused considerable trouble on the Prussian frontiers, but very slight loss was sustained there, thanks to energetic preventive measures. Austria did not escape so favourably. The malady was propagated far and wide, so that only Silesia, Bohemia, Upper Austria, Salzburg, the Tyrol, Carinthia, and the Italian Provinces remained free.

The disease was more malignant than usual, attacking 26 per cent. of the Hungarian cattle in infected districts, and the smallest mortality in infected herds amounted to 65 per cent. In other provinces the percentage of animals attacked varied from 1 to 20 per cent., and the mortality from 77 to 100 per cent.

At no time since the Crimean War was the Cattle Plague more rife than in 1863 in Southern Russia, the Danubian Principalities, and Poland. Through Alexandria the malady was transmitted to Egypt, and the native horned stock of that country was well-nigh exterminated by the disease. This caused great distress, both for want of labour and animal food, and placed the country in a dependent state, having to import cattle to supply the place of their own, and the active importation has since led to further outbreaks of Rinderpest and other contagious cattle diseases.

In the month of October, 1862, some Dalmatian cattle were shipped at Trieste for Pescara, Lanciano, and other places in Italy. These animals sickened and communicated the Plague wherever they were landed. The disease crossed the Apennines into the Neapolitan States, and in the month of December, 1862, had already penetrated the Pope's dominions. A veterinary surgeon of considerable merit, Marco de Tuoni, was deputed to investigate the Roman outbreak, and he began his inquiries on the 6th of January, 1863. He ascertained that the malady was introduced into the province of Ascoli-Piceno by cattle coming from the Neapolitan States. The Neapolitan cattle were the first seen ill, and they communicated the disease to the stock which they approached. The losses incurred by the great stock-owners of the Romagna may well be imagined. Not a few lost several thousand head of cattle, and the city of Rome was for a time left without milk, and suffered also from scarcity of beef. The stamping-out system was, however, adopted, and every attention paid to sanitary measures, so that by the end of the year 1863 the disease had completely vanished. It was the outbreak in the Roman States which M. Renault, the learned Inspector of the Imperial Veterinary College of France, was commissioned to study in the summer of 1863, and in the course of his travels he contracted the pernicious fever which is so deadly to strangers, and of which he died in Bologna, before he had time to report on his journey.

It is to be regretted that we have no accurate statistics of the Italian outbreaks. It is, perhaps, more to be regretted that our information concerning the ravages committed by the Rinderpest in Russia is not exact; and we have no reliable data except regarding the Austrian Empire, which, of all countries to the west of Russia, suffers most, and for which most satisfactory statistical tables have been prepared by the learned and indefatigable Director of the Imperial Veterinary College of Vienna, Dr. Röll. Thanks to this gentleman, I can supply a table showing the total losses by Rinderpest in Austria from the commencement of 1863 to October 1865.

Year.	No. of infected places.	No. of cattle in infected places.	Fell sick.	Recovered.	Died.	Killed,		Remainder.
						Sick.	Suspected.	
1863	1,789	839,860	172,165	49,880	110,336	9,950	4,168	1,969
1864	988	339,587	67,364	17,959	44,447	3,242	3,436	1,815
1865	115	43,282	5,214	1,199	3,237	724	745	131

It may be well to notice that the disease was far from being so prevalent in Austria in 1865 as it had been in former years.

THE HISTORY OF THE CATTLE PLAGUE

IN 1865 AND 1866.

THE Rinderpest prevailed as usual in Russia, the Danubian Principalities, Galicia, Bukowina, Moravia, Lower Austria, Croatia, and Hungary, early in 1865. It was reported to have reached the Tyrol in the month of April; but this was found to be incorrect. At that time an Englishman, James Burchell by name, was engaged in the Russian province of Esthonia collecting together a cargo of cattle for the English trade. He was in partnership with Mr. John Hönck and a Mr. Baker, and the three had agreed to share profits. The Esthonian Agricultural Society had undertaken to supply Burchell with 800 oxen for four copecs * per lb. of live weight, and 800 sheep. The Society collected 640 oxen at Revel, out of which 400 had to be chosen. Forty-six of these animals had travelled from St. Petersburg or its neighbourhood in four-horse waggons, but the remainder were Esthonian oxen. The steamer 'Tonning' left London on the 9th or 10th of May, and arrived at Revel on the 16th or 17th. She left Revel with 331 oxen and 330 sheep, selected by Mr. Burchell. I have taken considerable pains to investigate the documents relating to these transactions; and of the oxen chosen by Mr. Burchell three † were sold sick to a butcher named Siehbert, in Revel; one died, and a fifth was ill after the steamer had left Esthonia.

According to Burchell, 13 of the 46 oxen from the interior of Russia were amongst those shipped for England. Mr. John

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* A copec is a third of a penny.

† In the evidence printed with the Cattle Plague Commissioners' Report, I am made to state that 13 animals were slaughtered at Revel. This is a misprint.

Hönck says, that all the cattle placed on board the 'Tonning' were Esthonian. The St. Petersburg cattle were, however, mixed with the Esthonian cattle at Revel, and although they might not be seriously ill, it is a well known fact that Russian cattle infect others when they themselves are not suffering, or are very slightly attacked. The Plague was in the vicinity of St. Petersburg at the end of 1864, and probably later.

The oxen purchased by Mr. Burchell were to have been landed in London, but they were entered in the manifest for Lowestoft "so as to avoid the doctors." I have seen a letter in which this sentence occurs. After all, the steamer made for Hull. Mr. Burchell declares that they were not inspected at Hull. Others have asserted that they were subjected to a rigid examination, and had they been diseased they must have been stopped. The answer to these statements is to be found in the evidence of one of the Hull inspectors.

Mr. Noel James Lockwood, a veterinary surgeon, employed by the Commissioners of Customs as inspector of foreign cattle at the port of Hull, stated to Her Majesty's Commissioners that cattle landed at that port were examined at the gangway as they left the vessel, and again when untied from a rail to which they are temporarily attached after getting on shore. He considered that the examination was not sufficiently strict before the Rinderpest broke out, to enable him to detect any serious illness in the inspected cattle. When the Custom-house authorities found that there were a great number of cattle to be landed from Revel, they ordered both their inspectors to examine the cattle. This Mr. Lockwood says was owing to the quantity of the stock, as they had not had "such a quantity for a ong time." The two inspectors were engaged inspecting the cargo for about three and a half hours, "as nearly as possible." t was a cattle-boat, and therefore the cattle got off quicker han from the ordinary boats in Hull. Mr. Lockwood and his olleague thus inspected the cattle landed from the 'Tonning' at the rate of two a minute, and they did not of course "mouth every beast."

Mr. Read cross-questioned Mr. Lockwood as to the examination of the cargo, with a view to show that 600 animals had been "inspected" in three and a half hours, and he then asked, "Do you think from that inspection that you would have been able to detect any disease?" Mr. Lockwood, with great candour replied, "I certainly say not." Mr. John Hönck, one of the importers, admitted the laxity of inspection at Hull, and that diseased cattle were more readily admitted there than in London. He knew of one of the Russian oxen having been ill on board.

On the arrival of the cattle at Hull, Mr. Hönck "put them in the hands of a Mr. Coulson," who sold 106 of them to go to Derby or Leeds. A Mr. Hickman took 40 to sell at Manchester. The cargo arrived on the 29th of May, and the first 146 animals were disposed of on the 30th. The remaining 175 came to London, and they were sold on the Thursday following, "after they had arrived on the Monday night." The cattle for London were placed in Mr. Hönck's lairs in York Road, adjoining the Cattle Market. They were then sold for slaughtering, with the exception of 20, which Mr. Baker sent on the following day to Gosport. The 155 animals were disposed of entirely to metropolitan butchers. The sheep were sold at Hull for killing purposes. The steamer 'Tonning' was disinfected by the free use of chloride of lime, and after certain repairs were done to her engine she started for Tonning. The cattle made "as nearly as possible 12*l.* each."

In a leading article in *The Times*, published on the 15th of August, it is said that as far back as the 12th of June, animals affected with the Steppe Murrain were seen in the Metropolitan Market. As these were not the Russian cattle they must have been animals which had caught the disease in or near the market at the beginning of June. On the 19th of June, Mr. Carvell, of Lambeth Walk, purchased two cows, and one of these on the 24th showed signs of sickness. This is the first outbreak I have been enabled to trace, and the first concerning which any reliable record has been obtained. The disease was communicated to 12 animals with which the two newly bought had been placed. On the same day that Mr. Carvell purchased, other two cows were bought by Mrs. Nicholl, Laycock's dairy, and one by Mr. Baldwin of Hackney. All these carried the disease into the dairies into which they were introduced; and Mr. Priestman was called to the two last mentioned places to see the cattle on the 27th and 28th of June. Mrs. Nicholl's cows were supposed to have been poisoned. Her sheds were in fine order, and lofty. The first animals were attacked in open sheds near the lairs used for market cattle. Mr. Priestman had one or two of the animals killed, and made a post-mortem examination of them, and in less than four days he had several which died. Mr. Priestman said to the Commissioners, "In three days we had destroyed, I think, about 12 or 14. I examined them all, and I found the post-mortem appearances the same in every instance; of course the post-mortem examination which I made was made in the slaughter-house in the cattle market, or elsewhere; it was only a rough examination which I made. On the 28th of June I was called to a case at Hackney which precisely resembled the cases which I had at Islington. I was with that animal until 12 o'clock on the 28th, and I was in the shed again at 6 the following morning, and I found that the beast was dead. I made an examination of that case, and I found that after death, as I had before found, the post-mortem appearances were precisely the same as in Mrs. Nicholl's case. On the 3rd of July I had killed, or there had died, I think something like 20 cases, and I had 20 other cases in a quarantine shed on the premises. I applied to Professor Simonds at the College, and stated to him that I had a disease in one or two dairies which I could hardly understand, and in fact that I could not understand it at all, that it was something quite foreign to me. I described to him the symptoms and the post-mortem appearances. On the following morning I took him down the whole of the viscera of the cow which I had killed purposely. I took it as it came from the animal, and he inspected it; he then went with me to the dairy, and there saw 20 cows under treatment, 10 of which I had condemned on the morning prior to leaving as hopeless cases."

The malady was not recognized. Mrs. Nicholl's cows were sent to the market or to slaughter-houses. She lost 93, bought some others, and lost them also.

The history of the Hackney case was, that it was due to the purchase of a cow in the Metropolitan Cattle Market on the 19th of June, being one sent from Buckinghamshire with several others by a Mr. Birdsey, who is a large cow-dealer. The animal was bought by Mr. Baldwin on Monday the 19th of June. Almost simultaneously with the appearance of the disease among Mrs. Nicholl's cows this cow was attacked with the disease. Mr. Priestman, the veterinary surgeon, saw her on the evening of Wednesday, June 28th. She died within 24 hours of being noticed ill, but the true nature of the disease was not suspected. No other case occurred at Mr. Baldwin's until July 5th, when Mr. Priestman was called to a second cow which had also been bought in the Metropolitan Market on June 19th. This animal was slaughtered. On Friday, July 7th, three cows and a bull were attacked, and they also were slaughtered. On Sunday the 9th, four more were attacked, and were taken to the slaughter-house. On Monday the 10th, another was slaughtered; thus making 10 out of Mr. Baldwin's stock of 20 in the course of 12 days. The animal he bought on the 19th of June in the Metropolitan Market was an English cow. Mr. Birdsey is a highly respectable cattle-dealer living in Buckinghamshire.

By the 14th of July the disease had appeared in another dairy in Islington, and in others in Goswell-street, Holborn, Somers Town, Camden Town, Hendon, Dalston, Kingsland, and near Cumberland Market.

Twenty-three Dutch cattle exposed in the Metropolitan Market on the 22nd, 26th, and 29th of June, remaining unsold, were sent back to Rotterdam in the 'Batavia,' on the 2nd of July. They were placed in a field near Schiedam, and in a few days 21 had died. This was the commencement of the Dutch outbreak, and immediately afterwards we imported Dutch cows in all stages of Rinderpest.

As early as the 1st of July, the first cattle were bought in the Metropolitan Cattle Market which took the disease into Norfolk, and the disease continued to spread in all directions. It may, perhaps, best serve the purpose I have now in view, if I refer to details with regard to the outbreak in the various counties in Great Britain, and I can then furnish a brief summary on the origin and progress of the malady.

ABERDEEN.

In the end of July the Plague was conveyed from London to this county. The outbreak in the parish of Forgue is thus described by *The Banffshire Journal* of the 15th August, 1865:—"On the 18th of July last 4 calves arrived at Huntly by train from the south, and were removed to Forgue in a common cart—each calf in a separate sack. They were sent by a well known country dealer, whose name we give below. On one of the sacks, in the form of an oval, were the words, marked in red paint, 'Horsleydown New Stairs, London.' Within the oval the outline of a horse in a recumbent position, with the head turned backward; across the top were the words 'On hire.' On the other side of the sack the name 'Thomas D. Lee,' and above the name Fig. 3 and under it No. 13. Three of the calves were taken to the farm at Brackenbraes, but fortunately, according to previous custom, kept apart from other stock. On the 22nd July one of these three calves died, on the 24th a second, and on the 29th the third. Up to the present time, 14th August, no other case has appeared on the farm. The fourth calf was taken to the neighbouring farm of Westertown, occupied by Mr. Ogg, and put to a cow. In seven days after (25th) the calf died. The disease shortly made its appearance among the other stock, and the deaths were as follows:—August 2nd a calf; 3rd, a calf; 5th, a cow; 6th, a cow; 7th, a cow; 8th, a calf; 10th, a calf; 11th, a cow; 12th, a calf; 13th, a calf; 14th, a cow.

A Mr. Jamieson got a calf from the same lot, and put it to a cow on Berryhill, one of his farms close to the Inverurie station. In a few days the calf died, and, some days later, the cow also. At the date of the 14th August, 16 beasts were dead, and three or four others, the only other cattle on the farm, were seriously ill. The calves were supplied by Mr. Barrie, Stonehaven."

Mr. Keith, Bogenjohn, near Strichen, had up to the same date lost 20 head of cattle by the pest, here also introduced by London calves. On September 11th it was reported that the stocks on Berryhill and Bogenjohn had been exterminated. The disease had, however, attacked 7 head on the farm of Barnyards, and which had pastured in a field adjoining that containing the diseased beasts on the neighbouring farm of Berryhill. It had also killed 9 beasts at Strichen Mains, the home farm of George Baird, Esq., of Strichen. Over 60 cattle altogether had at this time been destroyed.

On the 28th September it was reported at Mr. Gall's farm of South Essie, St. Fergus: 13 cattle had been shot and buried, and 3 healthy ones killed and sent away. By the 4th October it had spread to the Kirktown, to Windyhills, and to the mains of Kinmundy, in the parish of Langside. At Windyhills all the stock (6) had been slaughtered, and at the mains of Kinmundy 5 were dead, while the stock of 70 excellent and apparently healthy animals were being slaughtered.

On the first outbreak of the malady in Aberdeenshire, meetings were held and an Association formed with central and branch committees; an assessment of 2*d.* per pound was laid on the rental, to be paid in equal parts by landlord and tenant, and inspectors were instructed to slaughter diseased animals, the losses to be defrayed from the funds of the Association. These, with active measures of disinfection, led to the extinction of the disease in the course of October.

On the 9th November a second outbreak was reported in the Buchan district, on Mr. Gall's farm of Middle Hythie, in the parish of Old Deer. It had been communicated by cattle brought from the south. On the 16th November it was reported on the farm of Boghead of Kininmouth, near Fraserburgh, and orders were issued to have the whole stock slaughtered.

The manner in which the disease has been twice stamped out in Aberdeenshire has attracted great attention. There are other examples of similar success, and the later experiences in Aberdeen indicate how useless any system limited to counties must be. A third outbreak took place at Pitmillan, Foveran, on the 23rd of January, when 14 animals were found affected; the disease was stamped out again. A fourth occurred at New Banchory, four miles from Aberdeen, and 6 animals slaughtered; and a fifth at Mindurno, in the Parish of Old Machar, where the disease had broken out some time ago, was imperfectly dealt with and has reappeared.

All this would swell the official returns, which indicate up to January the 27th that 27 farms had been attacked, containing 506 head of cattle, of which

49 were slaughtered healthy, 299 were attacked, 219 killed, 77 died, an only 3 recovered.

AYRSHIRE.

The Plague was conveyed to Ardrossan by 8 bullocks sold in Glasgow by Messrs. Swan and Sons to Mr. Robertson, butcher, Ardrossan. The cattle were destroyed and buried on the shore.

By the 11th October it was reported to have broken out at Genoch and Carwinshoch, in the parish of Maybole, and about six miles from Ayr. Andrew Hendin, cattle-dealer, Ayr, had bought a lot of 27 bullocks at the September Falkirk Tryst, and sold them to Mr. Craig, the tenant of Genoch. On the 27th September one died of what was thought to be dysentery; ten days after another took ill, and died in two days, by which time two more showed marked symptoms of the Plague. The whole herd was destroyed. Mr. Howat, of Burnton, had some young stock grazing at Carwinshoch, adjoining the field containing Mr. Craig's beasts, and one of them died on the twelfth and another on the thirteenth day after disease appeared among the bullocks.

Cases were also reported at Cumring Park, and at Glenays on Carrick Shore, and on the 24th October it was reported that on the farm of Largs 15 cattle out of a herd of 27 had died in the course of a week. At the same date it had broken out on the farm of Dunduff, about seven miles from Ayr.

The Privy Council Returns up to January 27th report 44 farms attacked, containing 1065 cattle. Killed healthy, 93; attacked, 465; killed, 27; died, 282; recovered, 53; unaccounted for, 103.

BEDFORDSHIRE.

Reports from Woburn, in Beds, state that several cases of Plague had occurred in the neighbourhood during the week ending 4th September. The disease was traceable to calves—the produce of London dairy cows—bought at Leighton Buzzard market.

The Plague did not extend in the southern portion of the county, but by the 15th January, 1866, about 70 head of cattle had been lost in the northern district bordering on the counties of Hunts and Northampton: the parishes of Dean, Perton Hall, and Keysoe have particularly suffered.

The Privy Council Returns up to January 27th report 67 farms attacked, containing 876 cattle. Killed healthy, 124; attacked, 465; killed, 77; died, 305; recovered, 59; unaccounted for, 24.

BERKSHIRE.

The district of Maidenhead was attacked immediately after the outbreak in London, and, like the first outbreaks, generally was traceable to cattle brought from the Metropolitan Market. Being a purely agricultural county, the Plague made rapid progress amongst the stock, until nearly the whole county was involved. On the 6th October, in the Maidenhead Petty Sessional division, including the town of Maidenhead, 241 cattle had already died or been killed while suffering from the disease. Several cattle had died on Oakley Green, the farm of Mr. Johnson, and situated midway between Maidenhead and Windsor. Cases had also occurred at New Lodge, the residence of Mr. Van de Weyer, the Belgian Minister, and at that of Mr. Hall Say, about two miles from Windsor.

In the Maidenhead district, during the week ending October 16th, 27 animals had died, 2 were killed, and 37 still suffered from the disease. Mr. Johnson had lost 10 more cattle during the week, making 26 in all, and 3 new cases had occurred at the Belgian Minister's. Mr. Carl, of Wedbrooke, had also lost 7 beasts.

During the week ending 24th October 24 new cases had occurred in the same district, 21 had died, and 11 recovered. 5 of these were at Oakley Green. At the Belgian Minister's there had been no new cases: 5 had recovered, and 1 only died. At Mr. Hall Say's 2 had recovered during the week, and 1 died.

The malady continued to prevail in the Maidenhead district, and up to the end of November new cases were reported at the Belgian Minister's, while at the same date a new outbreak was reported on the estate (Winkfield) close to Windsor.

It had broken out in the town of Windsor by the end of December, and at the same date the losses in the Maidenhead district were reported to be 283 head, valued at 2623*l.* 10*s.* These losses had been chiefly at Bray, Cookham, and Winkfield.

The total number of cases in Berks up to December 30th was 502, and in every 100, 19 were killed, 63 died, and 19 recovered.

The following, from a letter of Mr. Gadsden, V.S., shows the extent of the ravages in the Forest Division of Berks up to the middle of November:—

FOREST DIVISION.—*Mr. Gadsden.*—The Plague broke out in this district in August, and has infected 18 different herds, containing about 400 head of cattle: 70 of these were affected, 33 died, 30 were killed, 4 were cured, and 3 remain sick. Farmers are not buying, and the Plague is diminishing; I have not seen a fresh case for three weeks. An Assurance Society exists at Reading.

The Privy Council Returns, January 27th, report 82 farms attacked, containing 1098 cattle. Killed healthy, 12; attacked, 616; killed, 102; died, 361; recovered, 108; unaccounted for, 45.

BERWICK.

On November 6th it was reported that 1 bullock among a stock of 250 belonging to Mr. Wellbank, dealer, Berwick, had died, and that another showed symptoms of the disease. From this centre the Plague was conveyed into the neighbourhood of Swinton, where it made considerable havoc. When the Plague appeared at Swinton, the importation of cattle was stopped from adjacent counties, as well as the removal of stock from any place in the county, except in the case of fat beasts which might be removed for immediate slaughter. Another outbreak in the Parish of Chirnside still prevails.

Up to the 6th January, 244 beasts had been attacked in Berwickshire, of which 61 had been killed, 107 had died, 48 had recovered, and 28 remained sick.

The Privy Council Returns, January 27th, report 29 stocks affected, containing 1240 cattle. Killed healthy, 22; attacked, 304; killed, 62; died, 149; recovered, 76; unaccounted for, 17.

BUCKINGHAMSHIRE.

By the 7th August the disease was reported at Cookham, and a week later several fatal cases had occurred at Great Marlow, in the south of the county. About the 5th October it broke out in the Vale of Aylesbury, in connexion with the passage of some suspicious cattle, understood to have been brought from the Metropolis by other than the regular cattle-trains, and which were put into the field where the cows first affected were grazing. In a few days three lots of cows in the same field and two stocks in adjoining fields were seized with the Plague. An Assurance Society had been previously established, and the distemper was at once met by the destruction of the infected beasts. By the 10th December the Vale of Aylesbury was reported clear.

The following, compiled from reports made by the gentlemen named at the head of the respective paragraphs, will show the state of the Plague up to the middle of November:—

S.W. Division of Newport Pagnell.—*Mr. Powell.*—The Rinderpest first appeared on the 29th August among some beasts bought at a fair, and which proved to be from a diseased herd. Four outbreaks have come under my notice, 116 beasts having been on the farms attacked. 36 cattle were attacked, 11 died, 20 were killed, and 5 recovered. Cattle are still being bought in the district, and with good result, no cases having occurred for more than a fortnight. Several assurance associations exist in the district.

I am opposed to slaughtering a whole herd. In one herd of 43 all died in less than a fortnight, with the exception of 1 animal, which recovered; in another, of 17, 4 never took the disease, and 3 recovered, making a percentage of over 41 saved.

Buckingham and Winslow Districts.—*Mr. E. Bond.*—The Plague broke out on the 27th October on a farm belonging to Mr. Rogers, of Thornton. 20 have died or been killed, and 2 more will die. These are young steers and heifers, from 14 to 18 months old. The milking cows, on the other side of the farm, are ill with Pleuro-pneumonia. On another farm, belonging to

Mr. Ridge, of Thornton, 1 cow was seized with Rinderpest on the 11th November, and died on the 17th; 3 more are now dangerously ill. Mr. Parkins, of Adstock, has 1 cow ill out of a stock of 28, and Mr. Tomes, of East Claydon, has 1 also, out of a stock of 50. The stock on the four farms amounts to 180; of these 33 have been attacked, 17 have died, 4 were killed, 4 recovered, and 8 remain. The disease is rapidly extending. An assurance association for stock has been started.

It is remarkable that no beasts had been bought upon any of the farms attacked for six months, and no droves had passed through the villages. The origin is believed to have been due to the atmosphere. The lungs seemed to suffer more than is often reported, presenting appearances after death in many cases very like those of Pleuro-pneumonia. Emphysema was invariably present on the back and loins.

Vale of Aylesbury.—*Mr. G. A. Lepper.*—The Plague broke out on the 5th October, and there have been ten outbreaks up to the 13th November. The number attacked has been 21, of which 10 died, 4 were killed, 5 recovered, and 2 remain sick. The Plague was distinctly traced to cattle from Islington Market. All open traffic in cattle is stopped, but many underhand transactions with dealers are still carried on. The Plague is still extending. In this district about 10,000 cattle have been insured. We should "stop all traffic in lean stock, and let all fat animals go dead into market." The Plague must increase so long as animals from such a hotbed of infection as Islington Market are sent over England.

At Wraysburg, near Windsor, the disease appeared about the 20th November among the stock of H. Taylor. Three cows, a heifer, and some calves had died during the week. By the 27th November it was reported to have made alarming progress at Adstock, Thornbury, and Thornton, and by the 30th December there had been 419 cases in the county, of which 40 per cent. had been killed, 50 per cent. died, and 10 per cent. recovered.

At the 2nd January it was reported as increasing rapidly in the Buckingham district and at Little Horwood.

The Privy Council Returns, January 27th, report 84 farms affected, containing 1797 cattle. Killed healthy, 105; attacked, 545; killed, 196; died, 250; recovered, 75; unaccounted for, 24.

CAMBRIDGE.

Early in the epizootic the Plague reached Cambridge, and by the end of November it was reported as having destroyed 190 head at Willingham, where it still continued very virulent. By the 2nd December it had committed great ravages in the Isle of Ely—Mr. Farrin in the Wisbeach district having lost 16 head; Mr. Infield of Benwick had lost 38 out of 40 beasts; and on Mr. Newton's farm near March 12 out of 17 beasts had died. A week later six different stocks were reported ill at Sutton, and the disease was spreading at Haddenham, March, Doddington, and Wimblington. Several new stocks in the vicinity of March have been affected, and three new lots near Wisbeach. At Willingham 310 beasts had up to this date fallen victims.

By the 17th January 120 deaths had taken place at Sutton in the Isle of Ely. At Chatteris 12 deaths were reported the previous week, and at March, Doddington, and Wimblington 20 had perished in the same time.

The Privy Council Returns, January 27th, report 607 farms affected, containing 9453 cattle. Killed healthy, 1377; attacked, 4364; killed, 693; died, 3067; recovered, 257; unaccounted for, 347.

CHESHIRE.

On the 11th December the reports were that 1779 had been attacked, 948 had died, 123 had been killed, 629 had been placed under treatment, and 79 had recovered. Since the 6th instant the disease had shown itself in the following additional townships:—Bickerton, Bicerton, Barthomley, Baddington, Edleston, Gawsworth, Iddenshall, Kinnerton, Lea, Little Budworth, Marbury, Minshull, Vernon, Newton, Shavington, Tarvin, Woodcott, and Wrenbury; making a total of 81 localities in Cheshire in which the malady had now appeared. During the last five days there has been an increase of 146 attacked per day, and in the same time an increase of 79 deaths daily.

By the 18th December the total number attacked had risen to 2988. Died, 1740; killed, 157; under treatment, 951; recovered, 140. Since the 13th new outbreaks had taken place at Brindley, Bickley, Barton, Crewe, Cuddington, Churton, Eaton, Littleton, Marlston-cum-Lache, Norbury, Poole, and Ridley. Last week 1779 were attacked, 948 died, and 123 were killed. The increase attacked per day for the week was 172; the increase of died and killed 118 daily. The infected townships now number 115.

During the following week, terminating on December 25th, 1651 had been attacked, or 235 per diem, while the deaths were 1169, or 162 per diem. During the week 29 additional townships had been involved, making 135 in all. The total number attacked from the commencement was 4639.

The week ending January 1st, 1866, showed a list of 2155 attacked, or 307 per diem; and the dead and killed during the week amount to 1721, or 245 daily. Thirty additional townships have been attacked, making a total of 164 infected. The numbers attacked up to this time had been 6794; killed, 216; treated, 1703; recovered, 324.

The numbers attacked during the week ending 8th January, were 2629, or 375 daily; and the killed and deaths amounted to 1940, or 277 daily. The cases now amount to 9423; of which 6462 died, 235 were killed, 2173 were treated, and 553 recovered.

In the petty sessional division of Nantwich, up to the 15th January, 5060 were attacked, 3723 died, 35 had been killed, 1021 were still under treatment, and 281 had recovered. During the previous week in the same district 1257 fresh cases were reported. The disease had disappeared for the preceding three weeks from the parish of Stoke-upon-Trent, including the borough of Hanley.

An eminent medical practitioner practising in Cheshire throws doubt on the statement as to the number of cures. He attributes an apparent increase in the later weeks to the ranking of all cattle affections indiscriminately under the head of Rinderpest. They are all at once subjected to treatment, and the whole of the recoveries are set down as beasts that have passed through the Plague.

The Plague has already been most ruinous to the Cheshire farmers. *The Times* remarks that farmers who a short time ago were in robust health are said to be now seen with blanched faces, a prey to despair, and helpless, having been entirely ruined by this sad calamity. Some of them, seized with a panic on hearing of beasts having the Rinderpest in the neighbourhood, and desirous of saving some little of their property, have sold at a great sacrifice for the slaughter-house. A butcher is mentioned as having purchased 12 beasts from one farmer for 60*l.* Another farmer killed his own beast, and sold the joints at 8*d.* per lb., thereby realising 23*l.* for the one animal.

The Privy Council Returns, January 27th, report 1784 farms attacked, containing 43,251 cattle. Slaughtered healthy, 2009; attacked, 17,971; killed, 266; died, 12,449; recovered, 1144; unaccounted for, 4112.

CLACKMANNAN.

This county became involved in the middle of October, and the disease has led to continuous and comparatively serious losses up to the present time.

The Privy Council Returns, January 27th, report 36 farms to have been affected, containing 737 cattle. Slaughtered healthy, 168; attacked, 387; killed, 9; died, 201; recovered, 154; unaccounted for, 23.

CORNWALL.

This county remained free from the Plague for a short time after Devonshire had been attacked, though the first outbreak in the latter was at Egg Buckland, near Plymouth, and close to the Cornish border. Its ravages were greatest in the neighbourhood of Truro, where no measures were taken to check it, until on the 23rd November it was reported that there was scarcely a farmer or dairyman in the neighbourhood who had not the Plague among his herd. It was estimated that not less than 150 cattle had died within the week in the neighbourhood.

At Padstow, on the north of Cornwall, the Plague had also broken out during the week ending November 23rd, and had already destroyed 21 bullocks out of a herd of 50 belonging to Mr. Williams of Portmizzen, 12 more being affected, and 5 belonging to Mr. Champion of Treator.

At the same date the disease was raging at St. Austell, Lostwithiel, St. Ives, Penzance, and Helston. To the last-named place it was brought by a cow bought at Mitchell Fair, Truro, by Mr. Hearle of Trenavas. Mr. R. Foster of Castle, a large landowner in the neighbourhood of Lostwithiel, and having land and herds at Lanwithan, St. Winnow, Colewith, and Lanlivery, had the disease among his herds at each place, and on the previous Sunday and Monday he had 6 fine beasts shot and buried.

The following report from Penzance will show the time of the first outbreak there:—

West Penwith (Lelant Parish). Penzance.—*Mr. Ed. Hire.*—The Plague appeared on the above farm on November 1st. About 1000 cattle are kept in the parish, and 23 on the farm, which is somewhat isolated. All the 23 were attacked, 15 died, and 8 were killed. The outbreak was due to the purchase of two cattle from an infected district. It has not appeared on any other farm. I expect nothing from medicinal preventions, but would theoretically recommend *tar water*, *carbonate of ammonia*, and *chlorate of potass*, when ill. No insurance society has been formed in the district, but several insure in the "Provincial Horse and Cattle Insurance Company," Nottingham.

At the date of the 13th December the Truro district was still losing severely, the Plague being almost generally diffused, and over 40 animals having perished in the course of a week.

In the St. Ives district at the same date the Plague raged in two herds, and 21 animals had perished during ten days.

During the week 8 had died at Lostwithiel, 5 at Helston, and 4 at Padstow.

In the Penzance district two stocks are reported as infected, the first, that of Mr. Polkingthorne of Lelant, having apparently caught the Plague from a sow which was seen rubbing itself against a diseased cow, receiving on its skin the discharges from the nose and eyes, and two days afterwards mixed with Mr. Polkingthorne's cattle. On account of this outbreak the Mayor of Penzance issued an order closing the Borough Market against all live stock until the 13th January.

At St. Austell 2 had died, and several were seized during the week.

During the week ending December 19th 8 deaths were reported in the Truro district, 9 at Padstow, 19 at Lostwithiel, 20 at Peranzabuloe, and 7 at Ludgvan. New outbreaks were reported at St. Minver, Tywardreath, and Philleigh.

During the week ending December 26th the Truro district had 22 deaths, the West Penwith 7, and the Padstow and Helston several each. New outbreaks were reported at St. Columb and at Carlyon in the east of Cornwall.

The report for the week ending January 1st, 1866, was the worst for this county that had yet appeared, the losses having now amounted to 330, and few places remaining uninfected.

The week ending January 8th showed no general improvement, though the reports from Padstow and Helston spoke of the disease as having somewhat abated in these localities. In Truro 16 beasts had died during the week, and nearly 30 in the vicinity. A new outbreak was reported from Bridgend in the east of Cornwall.

The Privy Council Returns, January 27th, report 103 farms to have been affected, containing 2209. Slaughtered healthy, 114; attacked, 811; killed, 162; died, 471; recovered, 96; unaccounted for, 82.

CUMBERLAND.

The Plague was introduced into Cumberland by two short-horn cows, bought about the 5th September in Newcastle, and brought to Carlisle by a dealer, who sold them to two local butchers, Messrs. Wilson and Prescott, at 16*l.* per head—a figure much below their sound price. The cows were lost sight of from their arrival on Monday till Thursday morning, when they were brought into Carlisle, and placed in a byre in the west end of the town, being afterwards moved to a field at Etterby Scaur, when they were examined by the two local inspectors, and found affected with Rinderpest. The cattle were killed, and the trucks and byre in which they had been were subjected to a process of disinfection.

On the 20th September a second outbreak took place at Walton, near the market-town of Brampton, in the east of the county. Two bullocks brought out of Northumberland were put to graze in a field along with other cattle, and in a few days first one and then the other were attacked with the Plague: the first died, the second was slaughtered.

Active measures were taken to check the disease, an assurance association was inaugurated, and cattle trade was almost at once at a stand-still, though September is usually one of the busiest months of the year for this trade. The disease appeared to be checked in the districts where it first appeared.

Carlisle Market was closed about the middle of November, but the disease reappeared about the same time on four farms in the vicinity of Carlisle, in connexion with 18 Irish cattle bought in the market before the order for its closure came in force. These cattle it was afterwards found had come immediately from Glasgow. These beasts were taken by the purchaser, Mr. Johnson, to his farm; they sickened in a few days, and communicated the disease to his other stock, the whole of which he lost, 29 having died of the disease, and 17 having been killed to prevent its spread. Mr. Edgar, of Neal House, had 2 bullocks in a field adjoining the shed containing Mr. Johnson's cattle, which caught the disease; and some cattle belonging to another farmer in the district, Mr. Armstrong, of Cardewlees, having broken out of their field, and entered that containing Mr. Johnson's cattle, they also became affected. Mr. Strong, of Rattonrow, having driven some cattle past Mr. Johnson's cow-shed while the cattle were tied up in it sick, it soon broke out among them as well. Thus by the 28th November 33 cattle were condemned and destroyed within ten days, and 24, apparently healthy, were slaughtered for meat.

Notwithstanding these active measures, the Plague continued at Cardewlees, Cardewhall, and Rattenrow, and on the 4th December it broke out in a stock at Campfield, near Bowness-on-Solway, which had been purchased by Mr. John Lawson at Doune Tryst at 2*l.* per head, and turned out to graze on public marshes on the shores of the Solway. The owner in this case consented to the destruction of the whole herd.

An attempt made by Sir Thomas Brisco to raise a fund for the compensation of losers from the Plague broke down from want of support, and though the markets were closed complaints were made of dealers driving stock about the county and selling them when they could. The Mayor about this time opened Carlisle Market for fat stock to be branded or killed within 24 hours.

By the 18th December in the Orton district (around Mr. Johnson's) 100 cattle had been condemned and destroyed, 40 had died, and about 100 more were slaughtered, apparently healthy, at considerable loss: 5 beasts had recovered, and about 12 remained ill. Another outbreak had taken place at Norman, near Caldbeck, where 10 beasts were already dead.

On the 27th December the Plague was still on the increase: 20 cases had occurred in one part of Carlisle in the course of ten days; since the beginning of November 157 had been condemned and slaughtered in the Cumberland ward alone, 123 had been sold, apparently healthy, after the Plague broke out on the farm, 6 had recovered, and 40 remained ill. In the Wigton district several new cases had also taken place.

Up to January 5th the number of deaths in Cumberland ward since the beginning of November were 300, and 80 remained under treatment. In the Wigton ward there had been 75 deaths, and 40 remained under treatment.

The Privy Council Returns, January 27th, report 117 farms to have been affected, containing 2582 cattle. Killed healthy, 273; attacked, 1113; killed, 245; died, 500; recovered, 122; unaccounted for, 246.

DENBIGH.

The first outbreak in Denbigh appears to have been on the 2nd October in the Wrexham district, and the Plague made rapid progress, the number of deaths weekly rapidly mounting from tens to hundreds. On the 16th December the returns showed 227 deaths during the preceding week, and those of 13th January reported 292 for a similar period. The stamping-out system had been little tried, most of the beasts being allowed to die.

The following is the report from the Wrexham and Ruabon districts up to the middle of November.

Wrexham and Ruabon.—The first outbreak was on October 2nd; there have been 45 outbreaks in all; 382 beasts were attacked, 271 died, 27 were killed, 16 recovered, and 68 remain sick.

The Privy Council Returns, January 27th, report 275 farms affected, containing 4590 cattle. Killed healthy, 187; attacked, 3167; killed, 71; died, 2573; recovered, 375; unaccounted for, 148.

DERBY.

The Plague broke out at Palboton on 12th September in connexion with the purchase of a bullock at Rotherham Market, and which was put into a pasture along with the cattle that became first affected. It made comparatively little progress, appearing to be kept in check by the vigorous measures adopted. At the present time (end of January) the Plague has quite disappeared in North Derbyshire, which had been that affected.

The following is a report up to the 10th December:—

Chesterfield Division.—*Mr. F. E. Martin.*—The Cattle Plague first appeared on the 12th September at Palboton. It was supposed to be brought by a bullock bought by a butcher at Rotherham Fat Cattle Market, which is held every Monday, and turned into a paddock where two animals were kept with a low bad fence between them. The total number of outbreaks has been 14; 68 beasts were affected, 32 died, 28 were killed, 8 recovered, and 6 remain ill. The Plague has subsided here, but is extending at Barlow. An insurance society has been formed at Derby.

Bakewell.—No cases. No cattle traffic. Insurance associations exist.

Ilkstone.—No Plague as yet.

Ashbourne.—*Mr. Poyser.*—No Plague as yet. About 60,000 horned cattle are kept in my district. Its safety seems to lie in its being a breeding and rearing district. The disease is extending in the adjacent county of Stafford. As a prevention I should give 2 to 4 drachms hyposulphite of soda and 1 or 2 grains white arsenic in gruel and treacle. A cattle assurance association for the county exists.

The Privy Council Returns, January 27th, report 45 farms to have been attacked, containing 451 cattle. Killed healthy, 27; attacked, 199; killed, 118; died, 63; recovered, 12; unaccounted for, 6.

DEVON.

The disease appeared on the 12th July at Egg Buckland, in some Dutch cattle brought by Mr. Holberton, government contractor, and placed in his field there. The next day after the arrival of these oxen 3 of them died, and Mr. Snell, of Coleridge, a neighbouring farm, lent his horse and cart to remove the carcases. Mr. Snell had at the same time 20 cattle in a field separated from that containing Mr. Holberton's Dutch beasts by an iron fence only. Some of these cattle fell ill on the 16th July, and by the 6th August 10 had died, and 9 had been disposed of at low prices to a butcher, while suffering badly from the disease. The only recovery was in the case of the beast first attacked. Mr. Atwill occupied a field on the opposite side of Mr. Holberton's, and there the Plague appeared at the same time, carrying off 11 animals, or all the field contained.

During the last week in August a single case was reported at Brampton Speke. The beast was at once shot and buried.

Reports from Dartmouth on the 8th September state that several cases had appeared there, traceable to some cattle sent by Mr. Holberton, government contractor, for the supply of Her Majesty's ship 'Britannia.' The bullocks were placed in a slaughter-house which other cattle had to pass daily, and a day after first passing a cow was seized with the Plague, and died in eight days. The other cows sickened in succession, and all died, along with 3 yearlings.

Reports from Egg Buckland, bearing date of September 9th, state that the total losses now amount to 52. A week later the disease was rapidly spreading in this district, new outbreaks having constantly occurred at increasing distances from the original centre.

An outbreak at Painton is reported as follows:—

PAINTON.—*Mr. Dyer.*—Two cows were attacked on the same farm, one on the 21st September, and the other on the 3rd October. Both were killed. No cattle had been purchased for six months, none had been off the farm, and neither the owner nor any of his men had been near infected beasts. The other cattle on the farm were divided into half-dozens, and distributed over the farm. To check it I would recommend change of diet and locality.

The Privy Council Returns, January 27th, report 28 farms to have been affected, containing 318 cattle. Killed healthy, 13; attacked, 155; killed, 46; died, 62; recovered, 20; unaccounted for, 27.

DUMBARTONSHIRE.

On the 19th September the Plague was reported to have appeared in 9 fat heifers, brought from Mullingar, in Ireland, and sold in Glasgow Market to a Dumbarton butcher, who placed them in a field at Bowling: 6 of the heifers were killed before showing signs of ill-health, but in a few days the 3 others sickened, and successively died.

By the 3rd November new outbreaks were announced in different parts of the county: 11 cattle had died in a few days, and 9 more were ill at Knightswood, in the parish of East Kilpatrick; and several places in the east of the county were declared infected.

On the 20th November the Plague was reported on the dairy farm at Dumbuck, occupied by Mrs. M'Lea, and next to that on which the disease first appeared three months before. The farm is two miles from Dumbarton, and the premises adjoin the turnpike-road, so that the infection was believed to have been caused by diseased beasts passing. More than a dozen cows died in the course of four days, and 6 of them in one day. By the 12th December the whole of Mrs. M'Lea's stock, with the exception of 2 cows, had perished. At the same date the Plague was pronounced especially destructive in the neighbourhood of Milngavie, one farmer having lost above 40 head of cattle. A new outbreak had also taken place in Mr. Mater's stock, at Cameron, in the parish of Kilmaronock, and 8 beasts had fallen victims. This place was twelve miles from any previously-existing centre of infection.

The disease increased in virulence, and spread to an alarming extent, so that by the 22nd December in ten farms in a single parish as many as 140 beasts had died, and the Plague was gradually progressing westward.

The Privy Council Returns, January 27th, report 66 farms to have been affected, containing 1194 cattle. Killed healthy, 102; attacked, 823; killed, 17; died, 588; recovered, 127; unaccounted for, 91.

DUMFRIES.

The Plague was reported early in September at Lochmailing, in the parish of Dunscore, but the accuracy of the inspector's decision has been called in question, and it seems probable that it was Lung Disease.

Mr. Hutchinson, of Old Mills, in the parish of Torthorwald, purchased 20 West Highland cattle at the October Falkirk Tryst, and placed them in a meadow on his farm, apart from his other stock. Soon 2 of them began to droop and refuse their food, and died in four days' illness: 3 died the day following, and 2 more two days later: 19 out of the 20 died, and not only conveyed the disease to his other stock, but also to that of several of his neighbours. The farms of Barnkin, Bush of Craigs, Kirkblane, and Hightoun, had each lost several beasts by the 20th November, and the disease was reported on several other farms bordering the Lochar. Two Highland cattle, believed to have belonged to a lot of 36, out of which Mr. Hutchison's were obtained, and which had been bought by Mr. Sloan, Horseholme, had died, and by the 13th December, out of a stock of 49, he had only two or three queys, and 16 Highland cattle alive. At East Park, at the same date, Mr. Edgar had only 7 beasts alive out of a herd of 66; at Bush Mr. Swan had lost his whole stock of 42 Ayrshire cattle; and at Hightoun Mr. Haining had lost 33 out of 48. The entire stock were reported to be affected on Rosehall and Acrehead, two of the principal dairy farms in the vicinity of Dumfries; and at East Rafles, in Mousewald, on several small holdings near Lochar Moss, at Lincluden Mains, on the Stewartry side of the Nith, and at Muiry Hill, in Upper Nithsdale, several cases were reported. During the week ending December 12th there had been 41 deaths and 95 new cases in this district.

In the week ending December 20th eight new farms were reported affected in the vicinity of those previously attacked, on which the Plague was still proving very destructive. There had been upwards of 40 deaths during the week.

The following week there were 59 deaths in Dumfriesshire, and 12 in the Stewartry of Kirkcudbright, or 71 in all in the district. Four new farms had been attacked in Lower Nithsdale: several, including Acrehead, had lost their entire stock; and the disease had attacked the milch cows on the farm of Old Mills, where it first appeared.

The Privy Council Returns, January 27th, report 42 farms to have been affected, containing 1156 cattle: killed healthy, 92; attacked, 652; killed, 51; died, 532; recovered, 43; unaccounted for 21.

DURHAM.

On the 2nd September the Plague was reported to have destroyed 7 bullocks on Mr. Carter's farm in the outskirts of Hartlepool. All were foreign cattle, and it is positively stated that they had been imported from Rotterdam. The Plague had also extended to Mr. Carter's milch cows. On the 24th August it had appeared among some foreign beasts on the land of Mr. E. Spence of West Hartlepool.

The Plague continued to prevail, and by October 3rd as many as 60 beasts had perished of the Plague, or had been killed while suffering from it; and one dairyman, who had been in failing health, and all whose cattle except one had been lost, died suddenly, death having evidently been accelerated by the sad calamity.

On the 19th September it was reported that a lot of 22 cattle imported from Rotterdam by Messrs. Spence Brothers, cattle-dealers, West Hartlepool, were observed to be diseased on landing, and were all slaughtered by order of the inspector, the hides and horns being left in the warehouse for disinfection. The same firm imported the first diseased lot at Hartlepool.

South Shields was visited by the Plague about the end of October, 2 cows belonging to Mr. Henderson, Horsley Hill, having been attacked, and 1 having died. The Plague continued to prevail in these localities, and led to considerable losses.

Early in December an outbreak took place in the Darlington district, and whole herds died out.

The following reports extend to the middle of November:—

SUNDERLAND.—*Mr. D. Dudgeon.*—No cases have been met with here save in butchers' beasts brought from Newcastle Market. These have been seized on the road and at the railway station, and were immediately slaughtered, whilst those that had come in contact with them were killed for food before the Plague could be developed.

NORTH PETTY SESSIONAL DIVISION OF EASINGTON, HOUGHTON AND SPRING.—*Mr. Thomson.*—On the 16th October a case occurred at Great Lumley, which died. On the 21st October it broke out among the cattle of Mr. William Tindall, Ewe Hill Farm; 19 were attacked, 3 died, 11 were killed, and 5 were slaughtered sound and sold for food. The first cow attacked had been bought ten days before. Notwithstanding that she was at once slaughtered and buried, and all loose material that had come in contact with her burned, the Plague attacked his other beasts the following week. The whole district is now clear. Had there been proper facilities for separation, I should have expected good results from ventilation and treatment by laxatives, stimulants, and vegetable and mineral tonics. Cows alone are now being bought in the district, and even they very sparingly.

WEST HARTLEPOOL.—*Mr. H. Peele.*—The Plague was first seen in the West Hartlepool district on the 24th August, and has now extended to eleven farms or cow-sheds, attacking 96 cattle, of which, 40 died, 39 were killed, and 17 recovered. There has not been a case since the early part of the month. Farmers don't buy. I am convinced that the best system would be to follow the Continental system of killing all the diseased herd, two-thirds the value to be given by Government as indemnity. Had this been done on the first appearance of the disease here not 20 animals would have been lost, and the Plague would have been exterminated in a week. Treatment is unsatisfactory. In one instance, I had 6 recovering out of 12, but, in most cases, I could not get my prescriptions given, the owners preferring to let chemists and quacks try their nostrums. One man bled very severely, taking as much as 20 quarts in three days, but he lost all his cattle.

The Privy Council Returns, January 27th, report 62 farms to have been affected, containing 899 head : killed healthy, 180 ; attacked, 416 ; killed, 87; died, 207 ; recovered, 65 ; unaccounted for, 57.

DORSET.

About the 9th September the Plague broke out at Wyke Regis in Dorset, in close proximity to the slaughter-houses where the beasts are slaughtered for the meat supply of the men on the Government-works at Portland. Mrs. Mary Ward had lost 3 in six days, 2 having died, while 1 was killed by order of the inspector. Mr. Bennett of Dorchester had lost 1 a few days before from Rinderpest.

The total losses in the county, according to the Privy Council Returns, have been 4 killed and 8 dead.

EDINBURGH.

The Rinderpest appeared in at least three different byres in Edinburgh as early as the 9th August, though its presence was denied until the 15th, when it would no longer hide, the three byres in question having been already nearly cleared out. It was introduced by a number of low-priced foreign cows brought from London by an Edinburgh dealer. The cattle were assiduously treated in the byres in which they were seized, or in adjacent buildings, and in a very short time a number of dairies in each of the three localities and immediately around the first infected byres, were contaminated.

The diseased beasts were conveyed along the public streets in great numbers to be killed in the slaughter-houses, the carcases carried in open carts to the tanners, and at a later date the affected animals were driven or conveyed in an open waggon to the Sanatorium, which was early erected at the expense of the town. Manure was freely taken to the country, and without any disinfection, in farmers' carts, the market was kept open without disinfection, though diseased beasts had been repeatedly exposed in it, and thus, not only did the disease spread rapidly in the town, but from this as a centre, it quickly spread in all directions into the surrounding country.

From the primary centres in Thornibauk, M'Dougall-street, and Silvermills, it spread in three weeks to Roseburn, Broughton, Causwayside, Tollcross, to all parts indeed of the town; and a census of the city dairy-cows, taken the last week of September, showed a decrease from 1657, the number on the 17th August, to 874; a total decrease of 783 in little more than a month. Of these, upwards of 200 had been buried in one trench, many had gone to the knackers, and numbers had gone diseased to the abattoir, though a large margin is still left for such beasts as were sold, before they showed signs of illness, to prevent loss.

The treatment at the Sanatorium was so unsuccessful—there having been from the first an unbroken list of 60 deaths, and in the end only 2 or 3 recoveries—that it was closed in October.

From Edinburgh the Plague passed into the country to Liberton, Corstorphine, and Saughton, in the course of August, and soon after to Ratho, Kirkliston, Cramond, Dundee, Bathgate, East Linton, West Calder, Cockpen, &c.

In the last week of September the Plague appeared in one byre in Leith, several cows were slaughtered, and others attacked immediately after put under treatment. The disease soon acquired as wide-spread a prevalence proportionately in Leith as it had previously done in Edinburgh.

The Ratho and Kirkliston districts each received the disease in one dairy-farm about the middle of October, and it rapidly spread to those around the primary centres, proving so virulent that, in less than a fortnight, whole dairies were cleared out, and in those localities, as well as in most of the other places named, the Plague has proved very fatal up to the present time.

We append a report from the inspector up to the middle of November:—

EDINBURGH AND LINLITHGOW.

KIRKLISTON. — *Mr. J. Borthwick.*—The Plague appeared here on the 1st September, and from that time up to the 16th November, 25 stocks have been attacked. All cases were traceable to contagion, except one to which I was called yesterday, and where the owner had not purchased, nor seen the disease before, nor was it in his neighbourhood. About 490 beasts were in the same sheds or fields where the malady appeared, and a large number were sent to the slaughter-house. The number actually known to be attacked is 210, of which 128 died, 31 were killed, 38 recovered, and 13 remain sick. Farmers are not buying, but the Plague is extending. My treatment has been, in the first stages, small doses of linseed-oil, and linseed-gruel if the beast will take it. In the later stage, stimulants and tonics. Yet they seem to recover equally well left to nature: thus, out of 10 treated 4 died, 1 was killed, and 5 recovered; while out of 9 not treated, but left in a cold uncomfortable shed, 4 were killed, and 5 recovered.

By the middle of December the numbers attacked in the county amounted to 991, embracing 292 feeding-stock, 557 milch cows, and 142 young stock;

while the deaths had been 647, 449 having died and 198 having been slaughtered.

The city of Edinburgh was officially reported to be healthy in the end of January, four-fifths of the dairy cows having perished. Report further states that notwithstanding that a local Order, prohibiting the importation into the town of store cattle, yet the town dairies contain several hundreds more cows than they did a few weeks ago.

Privy Council Returns, January 27th. Stocks affected, 161: killed healthy, 2776: slaughtered, 714; attacked, 1404; killed, 187; died, 880; recovered, 191; unaccounted for, 146.

ESSEX.

The Plague broke out in this county in the first week of August, in 2 calves bought at Chelmsford Market, and which contaminated the other stock on the same farm. On the 14th August it was reported in Dengie Hundred, as well as in the neighbourhood of Chelmsford. On the 16th it had appeared at Easton near Dunmow, Hazleigh, Sandon, and other places. By the 26th it was reported at Dibden, Great and Little Bainfield, Withersfield and Shalford in the Saffron-Walden district, and at Bobbingworth Hall near Ongar; most of these outbreaks being clearly traceable to recent purchases. On the 30th it was noticed in the forest of Wanstead among a lot of foreign beasts.

On the 7th September it was reported to have broken out near Stratford, and to be spreading in the Ongar district. It had appeared also at Harwich, at Tendring Hundred, and at Romford, in connexion with recent purchases.

The disease continued to prevail in some parts, and towards the end of December it was still existing at Great Bentley, Wix, St. Osyth, &c., though its ravages were much more limited than in many other counties.

The following are reports from different veterinary surgeons in the end of November:—

Dengie and Rochford Hundreds.—*Messrs. H. S. Hurrell and Son.*—The Plague appeared about the middle of August among cattle recently purchased by R. H. Crabbe, Esq., Fillingham Hall, Mr. W. Meeson of Doggetts, and Mr. James Witney. The 18 cattle bought by the last-named gentleman were placed on a marsh separated only by a ditch from the stock of Mr. W. Allen, and these latter caught the infection from them before they showed any signs of illness. It also spread to another herd of Mr. Allen's in an adjacent marsh, but here it stopped. Mr. Crabbe's stock (Dengie Hundred) consisted of 6 cows, 1 bull, and 33 young cattle. They were subjected to a tonic treatment, but only 6 survived. Mr. Meeson (Rochford Hundred) had 6 cows and 2 calves attacked; the former only were treated, yet all died. The 18 purchased by Mr. Witney had laxative and alterative medicines on their arrival, and were setoned; 16 took the Plague. They were treated with vegetable and mineral tonics, permanganate of potass in their water, and nutritive gruels; all recovered except 2. The two districts contained several hundred head of cattle.

In Dengie Hundred 34 were attacked and died.

In Rochford Hundred 52 were attacked; 28 died and 24 recovered.

Believe the setoning, &c. was beneficial.

The disease is extinguished, and farmers have resolved not to buy. No assurance association has been formed here.

FRESHWELL.—*Mr. H. Webb.*—On the 13th August the Plague made its appearance in this locality, and there have been five outbreaks: 33 cattle have been affected, of which 26 died, 1 was killed, and 6 recovered: 7 more were killed in apparent health after exposure to the contagion. The last outbreak was only last week; no cause was apparent, and it was as virulent as at first, 5 out of 6 cows dying in the week. Farmers have been buying Welsh beasts last week without ill results up to this time.

For prevention I would recommend to break the herd up into small lots, afford shelter, and give generous diet. For treatment when the bowels are chiefly affected I give mild doses of alterative medicine, plenty of warm gruel, and attention to comfort. To get a reaction without stimulating the digestive organs would I believe be best secured by the Turkish bath.

Sheep.—Among 85 shearlings bought at Colchester market on Saturday, travelled home (25 miles) so as to arrive on Sunday, 2 showed sickness and scouring, and were dead next morning. In ten days 32 were dead. The symptoms were cough, drooping ears, loss of appetite, discharge from the nose, fœtid breath, and diarrhœa. All the rest were killed by the owner's desire, 27 buried and 26 sent to London market. The owner, Mr. Gibbin, placed these sheep in a pasture separated from that of a Mr. Ravenstock by a river, and from that of a Mr. Augurs by a ditch. The cows of the former were seized with the Plague in ten days and those of the latter in eleven. There was no other visible means of contamination. I have seen other similar cases.

COLCHESTER.—*Mr. Norris.*—The first case in this district appeared on the 13th of August: 5 cows, the only ones in the shed, sickened and 3 died; the first recovered with an empiric, the second under treatment by nitric and hydrochloric acids, 60 drops of each thrice daily. The second outbreak took place on the 17th October, 3 out of the 5 on the place sickened, but all recovered. The treatment was by nitric acid, sulphuric æther, and gentian. A third outbreak took place on November 7th; 3 cattle sickened, and all died. Seven others in a shed 50 feet distant have each had a tonic draught since the commencement of the outbreak, and all are healthy yet (November 25th). Besides the generally recognised symptoms of the disease, a very characteristic one is the swelling of the eyelids and the obliteration of the depression or pit at the inner canthus.

Farmers and dealers are again buying, but I have not traced any recent outbreak to this. An assurance association exists, and appears to work well.

Privy Council Returns, January 27th. Stocks attacked, 374—comprising 3684 cattle: slaughtered healthy, 403; attacked, 2104; killed, 374; died, 1303; recovered, 260; unaccounted for, 167.

FIFE.

In Fifeshire the Plague was first observed on September 14th, on the farm of Thornton, tenanted by Mr. Campbell, and close to Thornton Junction of the North British Railway. All the beasts (28) were reared on the place, and the field in which they all were was on the east side of the main line of railway, and immediately adjoining it. By the end of the month only 5 cattle out of the 28 survived. Three of the 5 died later.

About the 20th of September another outbreak took place on Major Wilson's farm of Ballo, near Leslie, among some cattle brought from Ireland a week or ten days before; one beast was ailing on its arrival. From these it extended in the course of another week to a second herd on the same farm, but in a different field. The disease soon spread to Broomhill, in the parish of Salim; Mackie's Mill, parish of Markwich; Chapel, parish of Abbotshall; and Bullions, parish of Torryburn; and Bandon. The disease made great progress at first in the western districts of the county, but towards the middle of December it progressed much more rapidly in the east as well, so that towards the end of the month it existed more or less in almost all parts of the county. At this time it was reported that over a wide stretch of country from Thornton to Kingskettle few farms had escaped.

Privy Council Returns, January 27th. Farms attacked, 259—containing 6891 cattle: killed healthy, 1265; attacked, 3821; killed, 94; died, 2475; recovered, 922; unaccounted for, 330.

FLINT.

This county was involved early in October, though the Plague made little progress till the end of November, since which time the losses have been large.

Privy Council Returns, January 27th. Farms affected, 248—containing 3950 head of cattle: killed healthy, 183; attacked, 2058; killed, 30; died, 1449; recovered, 246; unaccounted for, 333.

FORFAR.

The Plague was conveyed into Forfarshire by a lot of 200 stirks brought from the September Falkirk Tryst, and placed on four different farms in the neighbourhood of Brechin. The disease showed itself at the end of four days, and in the course of a week after some eight or nine farms in all had been affected. It had previously appeared on the 12th September in Dundee in a byre adjoining a park into which some stock from Edinburgh had been put, but it did not at that time spread further in that town, though in a subsequent outbreak it proved very fatal.

In the first week of October the Plague broke out in the vicinity of Arbroath among a lot of 10 Irish stots, bought at Forfar Market by Mr. Kyd of Newbarns, parish of Inverkeillor. About the same time it broke out in the vicinity of Montrose, and soon spread over the whole county, giving rise to very extensive losses. The various outbreaks were nearly all clearly traceable to cattle bought at Falkirk Tryst, and the rapid spread of the disease was largely due to the treatment of the malady which was all but universally adopted.

Privy Council Returns, January 27th. Herds attacked, 884—containing 21,770 head of cattle; killed healthy, 4187; attacked, 10,099; killed, 1013; died, 5689; recovered, 2157; unaccounted for, 1240.

GLOUCESTERSHIRE.

The disease appeared in the vale of the Severn on the 14th of September, and various outbreaks were reported soon after in different parts of this county. By the middle of December it was stated that at Upton, Beach, &c., in the parish of Bilton, more than 200 cattle had died, involving a loss of upwards of 2000*l*. This loss fell chiefly on dairy farmers, whose whole means nearly consisted of cattle.

By the middle of December it was reported on several farms in the vicinity of Malmesbury.

Lawford's Gate.—*Mr. Leigh.*—The first case was on the 14th September. On the places infected there were about 300 head of cattle; 108 have been attacked, 60 died and 48 were killed. The malady is extending, and farmers won't venture to buy till spring. An assurance society exists here. All the cases I have seen proved fatal. I give the best of good hay and corn *ad libitum* to prevent.

Stow-on-the-Wold.—*Mr. R. G. Verney.*—The Plague has not yet appeared in this district. All fairs and markets are suspended, and no business is transacted.

Tewkesbury, Borough of.—*Mr. R. W. Thomas.*—The Plague appeared here on October 8th in 1 beast, which died. The stock in the locality amounts to about 150. After the disease has made its appearance, treatment seems useless. Farmers don't buy any. There is a county mutual assurance association at Gloucester.

Privy Council Returns, January 27th. Farms attacked, 14—containing 359 head of cattle; killed healthy, 23; attacked, 84; killed, 56; died 20; recovered, 3; unaccounted for, 5.

HADDINGTON.

The Plague appeared near East Linton on the 26th of August among newly-bought stock, and though these were sent back to Edinburgh, an adjoining farm became affected, as seen below.

Early in November it appeared on the farm of Elphinston Tower, near Tranent, among Irish oxen put there to graze. By the 14th, 108 had either died or been killed, in consequence of showing symptoms of Plague, which had also spread to the farmer's (Mr. Fortune's) own cows.

In the course of October it broke out on the farm of Barney Mains, in the Haddington district, and proved very fatal. It was not known how this outbreak originated, as there had been no purchases. During November it showed itself in the stock on Athelstaneford Mains, and proved very destructive; and early in December the neighbouring farms of Markle and Brownrig, in the parish of Prestonkirk, caught the infection. These farms lie to the north-east of Athelstaneford Mains, and the prevailing winds having been from the south-west the infection was suggested to have travelled in this way. Another farm, still to the north-east, in the parish of Whitekirk has now been attacked.

The following is from a report by the district inspector, Mr. Storrie:—

E. Linton.—*Mr. Storrie.*—The Plague broke out on the farm of Stonelaws among 11 heifers, purchased from an Edinburgh dealer on the 23rd, with a warranty: 1 was killed and 10 returned on the 28th. A second outbreak took place on the adjoining farm of Redside. In all 25 were attacked, of which 18 died, 2 were killed, and 5 recovered. Some won't buy at present, while others buy a third, a half, or even the full amount of their usual stock. No ill effects have followed in this district, but within a few miles of me a stock of 85 are almost all dead. No assurance association exists.

Privy Council Returns, January 27th. Farms affected, 72—containing 1529 cattle: killed healthy, 372; attacked, 612; killed, 31; died, 465; recovered, 49; unaccounted for, 74.

HAMPSHIRE.

In the second week of September, 1 of a lot of 9 cattle from Barnet fair died on the road at Atterburn, near Winchester. The remaining 8 were found in Ampfield Wood, 3 of them being sick. They were put in quarantine in the wood, and thus kept from contact with other stock.

By the 25th 20 beasts had perished out of a lot of polled Scots also purchased at Barnet fair, by W. H. S. Stanley, Esq., of Paulton, near Romsey, and in the Isle of Wight several farms were attacked.

The first outbreak in the county would however appear to have been in the end of July, as will appear from the following remarks supplied in November by the inspector in the Isle of Wight, where the malady has since been got rid of.

Isle of Wight.—*Mr. E. Wheeler.*—The first case appeared about the 25th July, having been brought by contractors' cattle from London market. There have been 13 outbreaks, 105 animals have been attacked, 75 have died, 3 were killed, 25 recovered, and 2 remain sick.

Southampton, Basingstoke.—Here the Plague broke out in the end of July. There were two outbreaks, in which 10 cattle died and 3 were killed. The infected locality contained about 300 head. Farmers agreed to buy none for three months, and meantime the Plague is diminishing in virulence. There is no assurance association.

Petty Sessional Division of Winchester and City of Winchester. —*Mr. Redford.*—The Plague appeared on a small farm on 26th September. Three were attacked and died, and 2 more were killed in apparent health. No case has occurred since October 7th. The cattle fairs have been stopped.

Southampton and Hampshire, Alton.—*Mr. Charles S. Green.*—The Plague appeared here September 28th; 3 herds were attacked in localities containing 400 beasts, 10 sickened, 7 died, 2 were killed, and 1 recovered. The district is now clear. No purchases are made. In treatment, stimulating medicines are to be condemned.

Privy Council Returns, January 27th. Stocks attacked, 50—containing 621 head: slaughtered healthy, 58; attacked, 269; killed, 63; died, 171; recovered, 25; unaccounted for, 10.

HEREFORD.

Bell's Messenger of 23rd November remarks on the authority of Mr. Duckham, of Bagshaw Court:—

"The first case occurred on September 14th, and although the man who lost that animal believed it to be the Plague, and the subsequent sufferers and others repeatedly entreated the magistracy to call in a qualified inspector, no steps were taken for two months; and it was not until Friday the 17th inst. that Professor Simonds's opinion was taken, when he pronounced it decidedly Plague. Unfortunately several small herds have been completely swept away, and 39 valuable animals belonging to Mr. Dart, of Moreton Jeffries, have fallen victims to this direful calamity; and we are sorry to hear 40 more of that gentleman's valuable herd are ill. The animal causing these losses was a bull, and he had been traced as coming from London to the Hereford Market. So much for keeping markets open with such an infectious and fatal malady in the kingdom."

Reports on 9th January state that the Plague had proved very disastrous in the neighbourhood of Broomyard within the past few weeks. Mr. Dent, of Moreton Jeffries, had lost 90 to 100 head; Mr. Gooch, of Felton, the whole of his herd, and Mr. Owers, of Irington Bury, near Leominster, had had 50 deaths out of 51; some of his cattle having been purchased at from 50 to 80 guineas each. Others had suffered in proportionate amounts.

By the latest accounts the Plague appears to be increasing in this county.

Privy Council Returns, January 27th. Farms attacked, 45—containing 667 head of cattle: killed healthy, 18; attacked, 539; killed, 47; died, 390; recovered, 38; unaccounted for, 64.

HERTFORDSHIRE.

The following report will show how early this county was affected:—

H. Hempsted, Great Berkhampstead and Tring.—*Mr. A Prudames.* —The disease appeared here the last week in August, and there have now been three outbreaks; 10 cows were attacked, 8 of which died and 2 recovered, 5 having had the *full* benefit of treatment. In addition about 10 calves perished. Few and cautious purchases without ill results. The Plague has disappeared at present. Tonics such as iron I think useful as preventives, and in the first stages give diuretics with a laxative, followed by stimulants and tonics. Cattle are insured in the Hertford Insurance Company.

On the 26th November it was reported as existing between Hitchin and Stevenage, and has more or less prevailed since.

Privy Council Returns, January 27th. Farms attacked, 49—containing 677: killed healthy, 79; attacked, 367; killed, 66; died, 252; recovered, 35; unaccounted for, 14.

HUNTINGDONSHIRE.

The Plague was reported to have committed some ravages on the fen and lowland parts of Huntingdon as early as the 15th August. It was supposed to have been caught from diseased beasts brought to St. Ives Market. The verity of this report was afterwards called in question.

About the 20th October it broke out at Lilbrook, near Kimbolton, among some cattle bought at Leicester Fair. It appeared about the same time at Whittlesea.

The Plague prevailed for a length of time, and proved exceedingly disastrous in the vicinity of Kimbolton.

The following report indicates another outbreak in the vicinity of St. Ives, at a later date:—

St. Ives.—*Mr. G. Waters.*—About the 28th November Rinderpest appeared in a bullock, about two miles from the village of Garith, in the vicinity of which about 100 bullocks are pastured. It rapidly spread; and it is no uncommon thing for the farmers in the neighbourhood to find several of their cattle dead in the fields in the morning, though the previous night they had only slight scouring.

Privy Council Returns, January 27th. Farms attacked, 272—containing 4473 head of cattle; killed healthy, 629; attacked, 1967; killed, 219; died, 1524; recovered, 92; unaccounted for, 132.

KENT.

Greenwich seems to have been as early involved as London from the same cause, and large numbers were lost. The next outbreak was at Dover on the 11th July, caused by 12 cows sent down from London. Another outbreak near Canterbury was due to 4 Dutch calves brought from the London Market, and the whole home stock except 1 soon perished. It had appeared early in August at Deal and Walmer, in connexion, it was believed, with diseased cattle brought by Government contractors for the supply of the troops, and which were sent by rail to Shepherd's Well, and thence travelled to their destination.

The Plague proved very destructive on the farms where it first appeared, some holders having by the middle of September lost 100 head each; yet the malady was still confined to isolated spots, and appeared to be disappearing in some districts.

At Eltham it appeared on the 3rd August among a large lot of cattle allowed to graze on a common, and proved very destructive.

The following reports are up to the middle of November:—

GREENWICH.—*Mr. H. W. Pink.*—Little can be learned from the cow-keepers. The outbreak took place simultaneously with that in London. At that time about 700 cows were in my district, and now there is not over half that number; but it is impossible to say how many died, how many were killed, and how many sold. The cow-keepers are buying in fresh stock, but as far as I know the disease has not reappeared even where it proved most fatal.

DOVER.—*Mr. W. H. Bulmer.*—The first outbreak in this district was on the 11th July. There have been four distinct outbreaks in all, the total number of infected animals having been 16, of which 3 died and 13 were killed. Dairymen are buying cautiously but with good result, and the Plague is diminishing. The Norfolk Insurance Company have opened a branch here.

ROCHESTER AND NORTH AYLESFORD.—The first outbreak was on 12th August; 6 outbreaks have occurred, 31 animals were affected, 26 died, 10 were killed, 5 recovered without treatment. No treatment has appeared to do good. It seems to be subsiding. A few purchases have been made into the district without ill effects.

GRAVESEND.—*Mr. T. J. Poulton.*—On 18th August I was appointed inspector in consequence of having applied for an order to bury a cow that had died of the Plague the previous evening. In a second dairy of 2 cows, separated from this one by a slaughter-house, 1 was ill. One of two dairymen who herded their cows together had previously bought a bull at Romford Market; it sickened and died, as did also their other cattle. There have been 7 outbreaks, and 4 cows from the Metropolitan Market were found affected on their arrival by railway. The infected dairies contained 74 cattle, of which 31 were affected, 26 died, 13 were killed, 3 recovered, and 25 cows, 1 bull, and 3 calves did not take the disease. None now remain sick.

Dairymen shun the Metropolitan Market, but buy elsewhere without propagating the disease. For the last fortnight we have not had a case, not even by rail. Much good may be done by isolation. The fatality has been mostly in crowded byres. Chalybeate water seems serviceable. One farmer lost 2 cows, and gave rusty iron water to the 3 others; they remained healthy, although he frequently passed from the infected animals to these, and milked them twice daily. Another farmer lost 3 only out of a stock of 28. In the cases of 4 cows which died, 1 of the calves suckng them died, and the 3 others escaped.

ASHFORD.—*Mr. Fordham.*—The Plague appeared in this district on August 17th, and since then there have been 3 outbreaks, 11 animals have been attacked, 4 of which died, and 7 were killed. Farmers are not buying.

I believe that the Plague would be less deadly in cattle at pasture if the healthy were removed to fresh pasture, and put in small lots as soon as disease appeared. Thus on the first outbreak, August 17th, only 5 cows died; the last was on October 5th, and there were intervals of from seven to ten days between each case, and this notwithstanding that no separation was had resort to.

Privy Council Returns, January 27th. Farms attacked, 259—containing 2886 cattle: killed healthy, 349; attacked, 1486; killed, 356; died, 989; recovered, 84; unaccounted for, 57.

KINCARDINE.

This county was implicated early in October, and has suffered severely since the middle of December. The last Returns show that 64 stocks have been implicated, containing 1905 beasts: 78 were killed healthy; 876 were attacked; 157 were killed; 386 died; 111 recovered; and 222 are unaccounted for. The increase during the last week was 71 cases.

KIRKCUDBRIGHT.

This county was first attacked in the beginning of December. Three farms have been attacked, containing 96 cattle: 15 beasts were killed healthy; 45 sickened; 7 were killed; 27 died; 4 recovered, and 7 are unaccounted for.

KINROSS.

The disease was first reported in Kinrossshire on the 10th October, having appeared on the estate of Kinneston, where at the end of two months 21 had died and 12 had recovered. By the 10th November it had appeared among some cattle belonging to Mr. Stevens on the farm of Cavilstone. In the course of December it spread to several other places in the east of the county, and led to considerable losses. The Plague appears to be spreading at the present time.

Privy Council Returns, January 27th. Farms invaded, 24, with a stock of 808: killed healthy, 68; attacked, 378; killed, 2; died, 218; recovered, 48; unaccounted for, 110.

LANARK.

On the 19th August the first case of the Plague observed in Glasgow was seen in a cow sent from Edinburgh. The entrails were destroyed, and the carcase passed into consumption. The constant transit of cattle from Edinburgh to Glasgow markets led to the appearance of new cases in quick succession, and by the 30th September 432 beasts had been attacked, of which nearly all died or were killed. It spread rapidly in the Glasgow dairies, and in the middle of October several cases occurred in the dairy of Mr. Harvey, whose stock amounted to about 800. Here it proved very fatal, as many as 25 having died in one night; and to avoid further loss the owner disposed of them before they were seized, parting on one occasion with as many as 50 in one day.

By the end of October every part of the town was contaminated, and great losses had resulted. Seventy beasts had been treated at a sanatorium, and of these 31 were now reported well, the remainder having died.

It prevails with varying fatality up to the present time, and as in Edinburgh has been the means of spreading contagion into the immediately surrounding district as well as into more distant localities.

The Plague appeared in the vicinity of Airdrie about the 9th October on the farm of Faskim, tenanted by Mr. John Fleming, and in ten days 13 out of a stock of 21 had been swept off, the remaining 8 being so bad that they were not expected to live. One case had also appeared at this time at Cairnhill. It soon spread to neighbouring farms, and acquired an extensive prevalence in the district.

In Cambuslang parish the disease appeared in October, and proved very destructive, a number of dairies and farms having been attacked by the end of November.

An outbreak took place in the Upper Ward of Lanarkshire on the 15th November in the model dairy of Miss Edmonston Cranstoun of Corehouse. The whole dairy of 48 cows were almost simultaneously affected, and in little over a week only 5 remained, which however ultimately recovered. The contagion was believed to have been carried from Glasgow by the boxes sent there with the butter, more especially as these had to stand over-night in a butcher's shop on their way home.

Privy Council Returns, January 27th. Stocks invaded, 282—containing 5107 head: killed healthy, 517; attacked, 4371; killed, 1570; died, 1954; recovered, 416; unaccounted for, 431.

LANCASHIRE.

In the last week of August the Plague appeared on the farm of Mr. Hunt near Preston in two foreign oxen bought the day before at a local market. They had been kept separate from the other stock, and were buried in their hides with lime. A farmer at Brindle had bought five oxen from the same lot, and 2 of them were already dead. At the same date two cases were reported at Liverpool. Several additional outbreaks took place near Preston, one case being traced to Scotch cattle.

The disease prevailed extensively for some time in and near Preston, but by the 22nd December seemed to have disappeared, having however extended farther into the country. At this time it existed at Penwortham, Howick, and Hesketh Bank, districts within a short distance of Preston.

On the 22nd September it was reported that 3 beasts bought by a butcher in the Cattle Market had died from the disease. Also that 5 Dutch cattle imported *viâ* Leith had been slaughtered in Liverpool while suffering from the disease. The Plague spread to Wavertree and other places in the vicinity of Liverpool, and led to considerable losses. Cases occurred near Manchester on October 12th.

An outbreak at Leigh led to considerable losses, and on January 8th the Plague spread thence to Wigan, where several farms were affected. Two new outbreaks at the same date near Preston were promptly checked by the slaughter of all beasts on the premises where the malady had appeared.

The following reports are up to the latter part of November :—

Wavertree, near Liverpool.—*Mr. C. Twist.*—This district contains few cattle, having little pasture land. Twenty-six cases have occurred in all, 16 have died, 3 were killed, 5 recovered, and 2 remain sick. It was caused by cattle brought through the district from Liverpool to market, which is a short distance from Wavertree. When a case occurs I recommend that the healthy animals be sent to the butcher. Treatment has been by tonics, ale, &c. Farmers are buying nothing at present. An attempt is being made to establish an insurance association.

Borough of Liverpool.—The first case was seen on 31st August, and since then 47 cattle suffering from the disease have died or been slaughtered. In addition upwards of 250 cows have been hurried off to the shambles, to escape the certain destruction which would have ensued by keeping them in infected places.

Ormskirk.—The Plague has only appeared on one farm. The first case happened on 4th November; 9 were affected, 5 died, and 4 were killed. It was brought by 3 rearing calves bought in Liverpool. Purchasers are very cautious. The prompt slaughter of the infected seems to have stamped out the Plague. An assurance association exists in the district.

Over Darwen District.—The first outbreak in the district was on September 12th, another on the 24th September, and a third on the 1st October: 85 cattle were attacked, of which 81 died and 4 recovered; 30 were killed healthy, and 6 or 7 escaped taking the Plague. No farmers are buying. The Plague is diminishing here, but spreading in the adjoining district. Several assurance societies exist.

Preston.—Here the Plague appeared in the latter end of August, and there have been nine outbreaks in all; 37 beasts were attacked, 21 died, 9 were killed, and 7 recovered. It has now ceased. Farmers are not buying. I used carbolic acid as a disinfectant, and gave it internally, with apparent benefit, in combination with iron and potass.

Privy Council Returns, January 27th. Farms attacked, 325—containing 3517 cattle: slaughtered healthy, 720; attacked, 1625; killed, 329; died, 883; recovered, 154; unaccounted for, 259.

LEICESTERSHIRE.

The county of Leicester remained almost free from the Plague until December 20th, when it broke out among 10 young heifers at Leire, four miles from Lutterworth. It has not yet attained any wide prevalence, but has been almost entirely confined to isolated farms.

Leicester.—*Mr. M. Hack.*—In this district the Plague has appeared in one isolated animal only, on the 25th August. It was slaughtered. Cattle bought in Leicester Fair since have taken the Rinderpest, but none in this district. An assurance association has been started stipulating for the immediate destruction of all infected cattle.

Privy Council Returns, January 27th. Farms attacked, 37—containing 811 head of cattle: killed healthy, 48; attacked, 202; killed, 52; died, 113; recovered, 21; not accounted for, 16.

LINCOLNSHIRE.

The first outbreak in the county appears to have been on the 21st September in the neighbourhood of Brigs. It led to considerable losses; and in the course of November the Plague appeared also in the Grantham and Sleaford districts, and spread through a great part of the county. Near Stamford and Spalding the losses during November was very great, instances having been met in which large stocks had been almost entirely destroyed.

The report on January 6th says:—

The disease has made its appearance in the neighbourhood of Market Rasen: 1 stock affected, 15 animals dead. In the Louth district: 6 stocks affected, 46 deaths. About Alford: 4 stocks, 7 deaths.

In the Trentside district the disease is still extending: 3 stocks, 188 deaths. About Stamford the disease does not appear to be so violent.

Mr. Harris of Irnham has lost his whole herd, except one cow. Boston district: 7 stocks, 11 deaths. Long Sutton district: 13 stocks, 116 deaths. The deaths in the Spalding district during the week are returned thus:—Spalding, 4; Pinchbeck, 11; Cowpit, 11; Weston, 6; Whaplode, 1; Deeping St. Nicholas, 15; Moulton, 16. Round Market Deeping the disease is making sad havoc: 10 stocks, 123 deaths.

The disease has prevailed with terrible virulence in the village of Scredington. In all 45 animals have died, of which 34 are owned by Mr. Gordon alone.

The Plague continues to spread in Lincolnshire, and the number of cases goes on increasing.

Boston.—*Mr. Dickinson.*—The nearest place infected was East Fen, about twelve miles from Boston. The farmer (Mr. Carter) bought 3 cows in poor condition, at Partney Fair, to feed. The disease broke out about seven days after, 12 died and were buried, and the remainder were killed and sold, some coming to Boston. On November 14th I seized and ordered the burial with lime of the feet of 6 cattle; and I think much danger results from the trade in hides and feet, as it can't be said whether they are from healthy animals.

Grimsby.—*Mr. Wentworth.*—No Plague yet exists here, nor in the Bradley Haverston division of the county. As a preventive I would theoretically recommend oil of turpentine in three-ounce doses twice daily.

GRANTHAM.—*Mr. J. Batchelder.*—No case has, I believe, occurred within a radius of twenty miles of Grantham. It is very virulent at Peterborough, the outbreak being attributed to the October Fair. Fairs and markets for store cattle are stopped. An assurance association has been founded here.

BRIGS.—*Mr. J. M'Hugh.*—The Plague appeared on September 21st in 17 newly-bought animals. There have been five outbreaks in districts containing 1000 head of cattle; 56 beasts sickened, 28 died, 18 were killed, 6 recovered, and 4 remain sick. The cattle trade is at a standstill. I would suggest that Government should appoint, and pay permanently, veterinary surgeons effectually to stop the extension of the Plague. Farmers like things cheap, hence the great evil done by general treatment of quacks.

Privy Council Returns, January 27th. Farms attacked, 625—containing 9159 beasts: slaughtered healthy, 978; attacked, 4086; killed, 393; died, 2923; recovered, 345; unaccounted for, 419.

LINLITHGOW.

The farm of Dykeside in the vicinity of Bathgate seems to have been the first seat of the Plague in West Lothian. It appeared on the 20th September in a lot of 14 cattle bred on the place by the tenant, Mr. James Russell. The cause of the outbreak appeared to be a lot of lambs which Mr. Russell bought in Edinburgh a week before, and put to graze in the same field with these stock. It rapidly spread to other lots of cattle on the same farm, and in the course of October and November extended to neighbouring farms, including some in the parishes of Livingston, Blackburn, Crofthead, and Torphichen.

About the 1st October the Rinderpest appeared in a dairy near Kirkliston. The first case was followed a week later by several others, and, by the end of October, 16 out of the 21 animals were dead, 2 out of the 5 that recovered being Dutch cows. About the 7th October a lot of bullocks in the vicinity were attacked, and most of them died. By the middle of December it was reported as less virulent, though new stocks were still being affected.

At the same date it still prevailed, and continued to spread in the Bathgate district.

Privy Council Returns, January 27th. Farms invaded, 41—containing 1045 cattle: killed healthy, 273; attacked, 624; killed, 44; died, 478; recovered, 76; not accounted for, 26.

METROPOLITAN DISTRICT.

This is the Metropolitan Police District, which includes the whole of the county of Middlesex, and parts of the counties of Essex, Herts, Kent, and Surrey. It was the first part of the United Kingdom involved in disease. In the foregoing pages a statement is made of the earliest appearance of the Plague in the Metropolitan Market, and of its manifestation in Lambeth, Islington, and Hackney. Soon after these outbreaks the disease appeared most rife in and near the Essex Marshes. Dairymen having stock at pasture in the marshes sustained terrible losses, and the sick cattle were sold, as soon as symptoms appeared, in the metropolitan or other markets. Most of the London parishes were visited at once by the Plague. It did not cross the Thames until late in August, and spared Paddington through the entire period of its continuance in 1865. The Government experiments conducted in the Albert Veterinary College, Queen's Road, Bayswater, led to an outbreak in a dairy adjoining towards the end of January. In the first Report published by the Privy Council, in November, the total number of diseased animals reported since the commencement of the Plague was 5718, out of 10,000. There were slaughtered 2749, 2278 died, and only 138 recovered, leaving 553 on the sick-list. This Report was most inaccurate, and I have failed to get any reliable statement on the subject. The last Report, issued on the 1st of February, 1866, states that 7474 animals had been attacked, out of a total of 12,460. The slaughtered animals numbered 3149, those that died 3408, and the recovered only 315, leaving 602 unaccounted for. I should say that these numbers indicate little more than half the truth.

NORFOLK.

The Plague appeared in Norfolk on the 2nd of July at Reepham and North Walsham, and by the 10th August had attained to most startling dimensions in the districts of Trunch, Swafield, North Walsham, Wood Dalling, Foulsham, Guist, Thimblethorpe, &c. At North Walsham there were six occupations infected; in one case, several carcases had been thrown into a pit, and covered by twigs, &c., but without earth. The outbreaks were all traceable to cattle from London brought on the premises or passing them.

By the 26th August the Plague was reported as still prevailing with great severity. New outbreaks had taken place at Burgh St. Peter, Gorleston, Wraxham, Burgh near Acle, Attlebridge, Somerleyton, Mundesley near Lyng, and at Horsted, seven miles from Norwich.

On the 5th September the Plague was reported to be on the decrease, but the improvement was only temporary. It received a new accession of force, and committed such ravages that, by the 25th November, the Cattle Plague Association, which reimbursed losers only to the extent of two-thirds the value, voted in one week over 1000*l*. The following week not less than 1163*l*. was allowed after salvage had been deducted, the largest sum paid in one week since the commencement of the Society in August. The following week the sum of 1055*l*. was allowed, while claims for 1600*l*. stood over for consideration. On the week ending December 24th, 1784*l*. had been paid in compensation, and the balance in hand had dwindled down to 4717*l*., 9449*l*. having been already paid to losers. The following figures show the amount of claims for compensation admitted by the Norfolk Cattle Plague Association, and afford a tolerable indication as to the progress of the disease :—

Week ending		Animals.		Amount.
September 6.	...	15	...	£ 84 6 8
„ 13.	...	23	...	156 4 4
„ 20.	...	17	...	108 2 0
„ 27.	...	88	...	579 8 0
October 4.	...	43	...	235 13 0
„ 11.	...	21	...	171 13 4
„ 18.	...	22	...	189 0 0
„ 25.	...	67	...	442 9 3
November 1.	...	24	...	265 9 0
„ 8.	...	103	...	725 16 3
„ 15.	...	64	...	287 10 0
„ 22.	...	166	...	1031 12 3
„ 29.	...	173	...	1163 5 4
December 6.	...	177	...	1055 7 4
„ 13.	...	182	...	1113 15 11
„ 20.	...	201	...	1734 3 5
Total	...	1386	...	£9343 16 1

On the 17th August and the 1st September respectively the lamb disease, which gave rise to so much discussion, broke out at Mr. Temple's farm of Blakeney, and Mr. Harvey's of Crown Point. In the former case, the sheep were supposed to have conveyed the disease to the cattle, inasmuch as that ten days after the former had last come in contact with the lambs, the first cow was seized with Rinderpest, and the place was fourteen miles from any previously existing centre of contagion: 46 out of 120 lambs died or were killed. At Crown Point it is remarkable that the lambs were attacked before any cattle on the place had been, and this notwithstanding that they had been on Crown Point since the previous spring.

North Walsham, Tunstead, and Happing.—The Plague first appeared on the 9th July in foreign beasts, bought in Norwich Market on July 1st. It broke out on twenty-three different farms, attacking 175 head, of which 91 died, 62 were killed, 21 recovered, and 1 still remains. Its virulence seems abating. Farmers are still buying cautiously from Ireland and other grazing districts. When Norwich Market was reopened after six weeks' closure the Plague was spread in every direction. Curative measures have been unsatisfactory, homœopathic and otherwise.

Brothercross, Smithdon, and North Greenhoe.—*Mr. James Wright.*—The first case was on September 17th. About 100 head of cattle existed in the locality, 10 were attacked, and all were killed at once. Farmers have bought very sparingly, but with good results. All join the Norwich Assurance Society.

East Flegg Hundred, Yarmouth, Part of Mutford (Lottingland Hundred, Suffolk).—*Mr. W. Shipley.*—The Plague appeared on the 22nd August, and since then there have been fifteen different outbreaks: 98 beasts have been attacked; 12 died, 76 were killed, 7 recovered, and 3 remain sick.

There is much less cattle in the district than is usual at this season, and few will buy. I have not seen bad results from this cause. The disease is extending, but the cases are not so severe as at first. All recoveries that I have seen would have taken place equally, I am convinced, without medicinal agents. There is an insurance society for Flegg Hundred and Norfolk generally.

Holt and North Greenhoe.—The Plague appeared here on the 9th September, and there have been four outbreaks in all in localities containing about 150 head of cattle: 39 have been affected, 38 of which are dead, and 1 remains sick: 33 beasts were killed, about half of these before showing symptoms of the disease, as they were good fat. Within the last few days I have seen milder cases than previously. An assurance association has been formed, but the funds will soon be exhausted. Farmers are purchasing stock bought from Denmark without getting the disease.

Swaffham.—The Rinderpest appeared here on the 16th September, and there have been 19 cattle affected. Out of these 7 died, 8 were slaughtered, and 4 recovered. Buying is stopped, and so is the disease. I have not had a case since October 21st. I have promised my employers not to treat any cases, and thus to prevent contagion.

Blofield.—*Mr. John Dovend.*—The first cases were seen on the 21st August, and there have been six outbreaks. The infected localities contain 889 head of cattle; of which 39 have been affected, 11 died, and 28 were killed. A few stots have been recently bought without taking the Plague. Only four cases have occurred in the nineteen parishes composing my district since October 4th, and at present we are perfectly clean. As prophylactics I have given:—Potas. nit. et ol. terebinth internally, and tar et calx-chlor. externally, with success. Treatment objectionable. Farmers insure in the Norfolk Cattle Plague Association.

Dockering, Hundreds of Freebridge Lynn, Smithdon, and Brothercross.—*Mr. W. Chambers.*—The Plague was brought to the neighbourhood by 13 Irish steers purchased by Mr. Balwin at Falkenham Market, and driven to Dressingham. The disease appeared among them in a few days, on the 21st October, and as nothing was done by the owner to check it, spread in all directions, and eleven outbreaks can be traced to these, viz.:—Mr. Mitchell and Mr. Gayford, Wolferton; and Miss Bussy, Mr. Burns, Mr. Man, Mr. Petie, Prince of Wales, Mr. Riches, and Mr. Filts, at Dressingham; and Mr. Patrie, Ingoldiesthorpe. Altogether, 58 head fell victims, and no treatment seemed of use though I tried many methods: 60 cattle were attacked; 22 died, 36 were slaughtered, 1 recovered, and 2 remain sick. Farmers still buy, and I only know of one outbreak owing to this. The Plague is at present extending.

Walton.—*Mr. J. S. Worm.*—No Plague has occurred in my district, chiefly, I believe, owing to strict attention to precautionary measures, and particularly the avoidance of all purchases, which I strongly impressed on all.

Almost all cases in the county are traceable to cattle from Norwich, which is the great hot-bed of the disease in Norfolk. A few purchases made within the last month still remain healthy. As a preventive I would allow no cattle to be removed alive from their present situation.

I have seen many cases of Plague, and have lately had several animals which showed symptoms very similar to, if not identical with that disease, from eating beet, and from the excessively wet weather. All recovered.

BALE, THETFORD.—*Mr. J. Hammond.*—I have seen sad losses among bullocks from the disease being communicated by sheep, viz., at Blakeney and Sharham, Norfolk. The outbreak at the latter place was entirely owing to the owner disbelieving that sheep would take the Plague. The result is that a valuable lot of sheep and bullocks is now affected.

Privy Council Returns, January 27th. Farms attacked, 556—containing 8213 cattle: killed healthy, 500; attacked, 4063; killed, 1865; dead, 1791; recovered, 137; unaccounted for, 270.

NORTHAMPTONSHIRE.

NORTHAMPTON.—*Mr. Garratt.*—The Plague first appeared on the 23rd August in 2 cows sent by a cow-dealer in London to a butcher in Northampton. They were stopped at the railway-station, and proving decidedly diseased were killed and buried. The same day 2 cows bought in London the previous Monday were sold by auction in the market-place. On examination they were found diseased, and were placed in an isolated byre until next day, when the symptoms being unmistakable, they were destroyed. A cow that had grazed with the latter was also killed, and its fourth stomach presented spots of ulceration. All trade in store beasts is stopped, even fat beasts and sheep are debarred from the markets and fairs. Cattle are generally insured, and as three-fourths of the value is allowed it is to the owner's interest to kill his animals when attacked. But that the owners destroy them, many would probably be cured.

WELLINGBOROUGH.—*Mr. W. Aris.*—No cases have occurred in this district, but heavy losses have been sustained in the Northampton, Kettering, Daventry, and Towcester districts, in all cases traceable to diseased cattle brought into the localities. I consider the suspension of all fairs, markets, &c., for the sale of cattle and sheep, highly necessary; and that the orders to this effect should proceed directly and peremptorily from the Privy Council, no alternative being left to the local authorities. Farmers are shy of purchasing, yet many in this district have with safety so far bought directly from the breeders and rearers of stock. Some farmers have joined the Northampton Cattle Plague Insurance Company, but many have not insured at all.

Privy Council Returns, January 27th. Farms invaded 279—containing 5305 cattle: killed healthy, 950; attacked, 1680; killed, 482; died, 1025; recovered, 102; unaccounted for, 71.

NORTHUMBERLAND.

The earliest attack in Northumberland was on the 27th July, on the farm of Skedlaw, situated on the south side of the Tweed, a few miles below Kelso. A lot of 14 foreign bullocks brought from London and sold in Kelso on July 21st, were the first subjects of the disease, and 8 of these having died, the remainder were sent back to London. Five home-bred beasts with which the foreign cattle had grazed contracted the Plague, but it did not proceed further.

At Bedlington the Plague was noticed on the 14th September, and on the 24th it became known that Newcastle was contaminated. A whole ship's cargo newly arrived were destroyed, yet the Plague showed itself among some cattle pasturing on the Seazes. At Camboise also several cases had occurred. At Newcastle up to the 29th of September the disease continued to spread in the cowsheds in town. On the 3rd October, reports from Link House Farm, Camboise, stated that out of a lot of 50 Irish cattle first attacked, 49 had died in the course of nine days, and other home-bred stock were attacked.

Reports from Newcastle up to the 17th October spoke of the disease as spreading very seriously, nine new byres having been attacked during the week, as well as a number of animals grazing on the Moor. Up to the end of October, in the town of Newcastle alone, 218 beasts had been killed, while suffering from the disease, and 158 had died. Of these 204 were milch cows.

The Plague continued to spread in Newcastle and the surrounding district during the greater part of November, but in the end of the month it was reported as rapidly abating. It has continued with varying virulence up to the present time (January).

The following report from Bedlington will show the course of the disease in that district :—

Bedlington.—*Mr. D. M'Gregor.*—The first attack was on 14th September. It has appeared on nine farms in all, but on these there were eleven outbreaks. In all 95 animals were attacked: 41 died, 51 were killed, and 3 recovered. Have confidence only in killing affected animals, thoroughly disinfecting all places where disease has been, and stopping all traffic in men and animals from infected to healthy places. The Plague was brought to the district by fresh stock, and since then cattle traffic may be said to have ceased. It seems to be diminishing in virulence. Attempts to form assurance associations have failed.

Privy Council Returns, January 27th. Stocks attacked, 180—containing 2266 cattle: killed healthy, 489; attacked, 952; killed, 261; died, 549; recovered, 71; unaccounted for, 71.

NOTTINGHAM.

On the 28th August the Plague appeared in the herd of Mr. Brett, of Oxton Grange. A case had been previously seen in the town of Nottingham.

At a later date the Rinderpest appeared near Preston and in various other parts of the county.

By the 18th January it was reported as spreading in the Newark petty sessional division of the county, and as having been very disastrous in the East Retford petty sessional division, while at Sutton, Welham, Lound, Gringley, &c. it still prevailed.

Mansfield.—*Mr. R. Reynolds.*—Only one case has occurred on the 21st October. It was killed. Purchases are made with no evil result. Two local assurance societies and a county one exist.

Privy Council Returns, January 27th. Farms attacked, 54—containing 1214 cattle: killed healthy, 89; attacked, 478; killed, 34; died, 235; recovered, 22; unaccounted for, 137.

OXFORD.

The first appearance of the Plague in this county appears to have been on the 19th September at Henley-on-Thames.

In the middle of the following month it appeared among the stock of Mr. William Howes, dairyman, near Oxford. Some beasts from the Metropolitan Market put to graze in an adjoining field just before the outbreak, were observed to look unhealthy during their stay. Mr. Howes had 16 beasts attacked, and none of these recovered. The disease rapidly spread in both the valley of the Isis and that of the Cherwell, and proved very disastrous to the herds. In the course of November it was particularly destructive in the villages of Binsey and Marston, nearly every herd having been attacked.

By the end of December it had made alarming progress, and was very virulent in the parishes of Cassington, Garnton, Ridlington, and Watereaton, in the Woodstock district, while at Otmoor (Bicester district) and Crawley (Witney district) the disease had now appeared. Allopathy, homœopathy, and the hot bath were largely tried with an equal want of success.

Oxford.—The Plague was reported as still extending in a radius of eight miles round Oxford up to the 6th January. In some cases stirks and animals not in calf had recovered to the extent of 40 or 50 per cent., but with this exception it continued as virulent as ever. The administration of sulphites to a whole herd where one had been attacked had materially mitigated the severity when the disease subsequently manifested itself. The Plague is now wider spread than it has been at any antecedent time during the present epizootic.

Henley-on-Thames.—One outbreak took place on 19th September: 2 cattle were attacked and died. Farmers avoid buying. They have an assurance association at Reading, Berkshire.

Privy Council Returns, January 27th. Farms affected, 81—containing 2138 cattle: killed healthy, 89; attacked, 829; killed, 97; died, 469; recovered, 121; unaccounted for, 142.

PEEBLES.

Only two farms have suffered in Peebles, one in October and one in December. Six beasts were attacked, 5 of which were killed, and the remaining one recovered.

PERTHSHIRE.

On the 25th September the Plague was reported among a lot of cattle bought at the September Falkirk Tryst, and put into a park at Blair-Drummond. Another outbreak was reported from the Gask estate, a few miles east of Cupar-Angus, among a lot of recently purchased Irish cattle. One had died, and the rest were at once sent off to London for sale. In the end of November 8 beasts out of a lot of 28, bought at Falkirk Tryst by Mr. Playfair of Banchory, near Cupar-Angus, were attacked. All were slaughtered, and the healthy carcases sold.

Reports from Greenloaning and from a farm on the Ochil range reported outbreaks towards the end of October, and in the former case it was supposed to have been caught from diseased cattle passing by the Scottish Central Railway. At the same time the Plague broke out among a lot of 161 Irish cattle belonging to Mr. Spiers, cattle-dealer, and brought to Nether Kinalty and Linross, in the parish of Airlie, and at Knockdenny, Glamis. At the time of the report 50 were ill. It had also spread to several new farms in Lower Strathearn, in the parishes of Dunning and Forteviot.

In the end of October a lot of 9 Irish cattle affected with the Plague, and deserted by their owner, were killed and buried at Oliverburn. At the same date reports from Comrie, Blair Drummond, Doune, Strathallan, Strathtay, Dunning, and other districts in the county, state that the Plague was on the increase. On the 12th November it was reported in the byres of Mr. Fisher, within a gunshot of those of the Dowager-Duchess of Atholl at Dunkeld.

From its proximity to Falkirk, from the number of cattle bought at the Trysts, and the herds left unsold at the market and afterwards driven about in search of purchasers, Perthshire suffered to a greater extent from the disease than most other counties, and it has continued to prevail with a varying intensity up to the present time.

Privy Council Returns, January 27th. Stocks invaded, 395—containing 6845 head: killed healthy, 740; attacked, 4107; killed, 101; died, 2552; recovered, 915; unaccounted for, 539.

RENFREW.

This county was early involved and suffered considerably.

The recent Privy Council Returns, January 27th, are as follows:—Stocks attacked, 67—containing 810 head of cattle: slaughtered healthy, 202; sickened, 569; killed, 84; died, 314; recovered, 132; unaccounted for, 39.

ROXBURGH.

The Rinderpest broke out on the 26th July, at Skedaw, in the Kelso district, but on the Northumberland side of the Tweed. The next appearance of the Plague was at Crailing Tofts, near Jedburgh, in the first week of October. The farmer, Mr. Rutherford, bought a lot of 20 stirks at the Jedburgh Roodday Fair, on the 29th September, and received a fortnight's warranty. The beasts were from Yorkshire, an uninfected county, but Mr. Rutherford kept them apart from his other stock. Most of the affected beasts recovered, and the Plague did not extend further.

The next outbreak appears to have been about the 20th November, on the farm of Old Belses, tenanted by Mr. John Little. Three milk calves bought in Cumberland died of the disease, and communicated it to others on the same place. Four calves, 3 cows, and a lot of 13 store cattle perished from the Plague.

The Plague appeared in the first week of January on the farm of Knowtownhead, near Hawick, tenanted by the proprietor, Mr. Maxwell, of Teviot Bank. It broke out among some lean stock bought near Carlisle nine weeks before.

The following is from a report by Mr. Robertson, of Kelso, in November:—

Kelso.—*Mr. W. Robertson.*—The Plague appeared here on the 26th July, and there have been six outbreaks in all, in localities containing several hundreds of cattle. Twenty-seven cattle have been attacked: 12 died, 9 were killed, and 6 recovered. Farmers buy very sparingly; this purchasing seems to promote the propagation of the disease. By way of prevention I would suggest that the importation of foreign store cattle be stopped, or that an efficient inspection and sufficient quarantine be given. No assurance society against the Plague has been formed here.

Privy Council Returns, January 27th. Farms attacked, 9—containing 187 head: killed healthy, 8; attacked, 51; killed, 22; died, 20; recovered, 3; unaccounted for, 6.

RUTLAND.

There has been only one outbreak in Rutland, which took place in the last week of December. Out of a stock of 26, 25 were attacked; 3 killed; 15 died; and 7 are unaccounted for.

SELKIRK.

On the 27th September the Plague was reported at Hollybush, near Galashiels, among a lot of cattle bought in Edinburgh four months before. The herd was slaughtered by Mr. Elliot, the proprietor, and the healthy carcases passed into consumption, the diseased having been buried. It broke out about the same time in a park at Haining, Selkirk, and several cases quickly followed in town dairies. It spread to several holdings in the district, but did not attain a wide-spread prevalence, and has now entirely subsided.

Privy Council Returns, January 27th. Farms involved, 6—containing 187 cattle: killed healthy, 13; attacked, 17; killed, 5; died, 10: recovered, 2.

SHROPSHIRE.

The Plague broke out on the 6th July, at Mrs. Minor's, Tyrley Castle, near Market Drayton, among a stock consisting of 25 milch cows, 6 heifers, and 4 calves. It was communicated by some foreign stock which had grazed in an adjacent meadow, but had broken out and mixed with Mrs. Minor's cattle a few days before. When Mrs. Minor's first cow became affected these beasts were examined, when it was found that one was dead and three were in the last stages of the disease. Mrs. Minor lost her whole stock before the end of the month, except 3 cows and 2 heifers.

It attacked two other herds in the early part of August, and destroyed 40 cattle in all; but by active measures of separation, disinfection, slaughter in certain cases, and other precautions, it seemed to be subdued about the end of August. A month later it reappeared on the other side of Market Drayton, and spread rapidly devastating the herds in the locality to a frightful extent. By the 12th December upwards of 700 beasts had perished, no less than 50 farmers being sufferers. It still prevails in this locality.

The following, from a report by Mr. Dayas, indicates the occurrence of an isolated case at Longnor :—

LONGNOR.—*Mr. C. Dayas.*—Have only had one case on the 18th October, in a cow belonging to a dealer. Could trace no other source than through the owner's constant attendance on fairs. Three cows herded with this one escaped. All fairs and markets have been stopped, and few cattle change hands. An assurance association has been formed, but makes little progress.

In the Whitchurch division up to the 27th January 538 beasts had been attacked, 405 had died, and only 49 recovered, while 84 still remained under treatment.

Privy Council Returns, January 27th. Farms invaded, 171—containing 4750 cattle: killed healthy, 375; attacked, 2161; killed, 163; died, 1511; recovered, 229; unaccounted for, 258.

SOMERSET.

The Rinderpest was reported in Somerset in the end of July, and early in August several dairy farms were contaminated in the neighbourhood of Shepton Mallet, especially in the parish of Dilchet.

About the 1st December it broke out in an unmistakable form near Bath, and in a few days out of a stock of 27, 19 had either died or had been destroyed. A case had also been seen at Glastonbury and one at Bridgnorth, in a beast that had been exposed in the market.

Privy Council Returns, January 27th. Farms invaded, 14—containing 260 cattle: killed healthy, 42; attacked, 61; killed, 35; died, 21; recovered, 1; unaccounted for, 4.

STAFFORDSHIRE.

Isolated cases appeared in this county before the disease spread. Thus near Litchfield a beast newly purchased at a fair contracted the disease. And near

Stafford an outbreak occurred on the 20th September, and a whole stock suffered.

The next outbreaks appear to have been in November, in some places by newly-purchased animals, and in others adjoining infected districts. In the parts adjoining Market Drayton in Shropshire, and Nantwich in Cheshire, it spread to an alarming extent; reports in the end of November stating that it appeared to be sweeping off the entire stock.

In the beginning of December the Plague was said to be raging violently in the north of the county, in the neighbourhood of the potteries. Within an area of a few miles 160 beasts had died, the property of 17 persons. Six of these individuals had lost in the aggregate 123. Five of the herds were infected by beasts bought at a sale of farm stock at Hornby a few days before, the auctioneer having incautiously allowed a butcher to put in a cow which was afterwards found to have come from an infected farm.

The Plague still prevails in these localities. The following reports are up to the middle of November:—

Lichfield.—*Mr. W. Burry.*—The first case in this district happened on August 24th, the animal having been bought at a fair. A second on the 28th November, recently bought from a dealer. Two died; one was killed. We have the Stafford County Assurance and Lichfield Union Association. Farmers are buying cautiously.

Stafford, Penkridge and Stone.—*Mr. John Carless.*—The Plague appeared in the Stone district about the 20th September. There were 18 cows in the herd, 15 of which were attacked, 13 died, and 2, more mildly seized, recovered. It appeared in another farm on the 12th November: stock, 12 cows and calves, 4 were attacked, killed and buried, 5 were killed on the premises for consumption, and 2 remain healthy. On a larger farm about a mile distant it broke out on the 20th November, 9 are ill and the majority will apparently die. On an adjoining farm in the Easingwold district the Plague has existed 5 weeks, and killed 25 cows. It was here caused by 2 calves from Stafford Fair and which came from an infected district. Farmers buy from stocks known to be healthy. For prevention we rely on isolation and disinfection. The symptoms vary much, hence so must medical treatment. Those that recovered had a saline aperient, followed by gruel and ale every three or four hours, with the addition of two or three ounces of brandy night and morning so long as they seemed required.

Tamworth.—*Mr. W. Robinson.*—No cases of Plague have occurred in my district, the immunity being due in my opinion to the careful attention given by farmers to the sanitary rules published for their guidance some time back, and the importance of which I have daily endeavoured to inculcate. In particular, they avoid public sales of cattle. Adjoining districts have been less fortunate; but the losses have been invariably due to the purchase of low-priced cattle at fairs.

Privy Council Returns, January 27th. Farms attacked, 132—containing

3012 cattle: killed healthy, 202; attacked, 1354; killed, 161; died, 877; recovered, 130; unaccounted for, 186.

STIRLING.

On the 18th September Rinderpest broke out among a lot of 11 three-year-old stots recently purchased in Glasgow Market, and put into a field at Campsie. The surrounding fields being filled with dairy and grazing stock, the stots were at once slaughtered; but a few days after a cow and an ox in a field about 100 yards off were seized; they also were killed.

It had previously appeared on the 4th September at Dunipace among West Highland bullocks bought at Falkirk Tryst, and it broke out in quick succession in numerous stocks, clearing out whole herds in a marvellously short period of time. The cause of this great mortality may be appreciated from the following extract from *The Scotsman* of 19th October:—"The bad results attending the holding of the late Falkirk Tryst, against the very general wish of the holders of stock in the district, are now becoming apparent. At the close of the market upwards of 600 head of Irish cattle were left unsold, and those were quartered in parks in the neighbourhood, in the expectation that an extra tryst would be held for the disposal of such stock. Murrain and Rinderpest have broken out in most of these herds, and the latter disease in particular has worked great havoc. The stocks are crowded in parks, the grazing of which is quite inadequate to the support of the animals; and now that the disease has appeared among them, of course none of the neighbouring farmers will let additional parks for the accommodation of the Irish drovers for fear of infecting their own stock. The consequence is, that the infected and sound animals mix together; and unless some arrangement is come to speedily, the whole of the animals must become affected." It goes on to state that many farmers and Scotch dealers whose herds had become contaminated are equally badly off for means of separation, so that the Plague was not only wide spread but unusually destructive.

The following report from the inspector about the middle of November will show the state of matters at that time:—

DUNIPACE AND DENNY.—*Mr. Waugh.*—The Plague appeared here on 4th September among West Highland stirks brought to Falkirk Tryst. It has attacked thirty-three different herds, comprising little short of 700 head of cattle; 350 have been attacked, mostly Irish, 309 died, 2 were killed, 39 recovered, and 26 remain sick. Not a beast is bought except those that have gone through the disease; these are bought up by farmers who have lost all. The cattle continue to die as fast as ever, but as the herds diminish there are not so many to be attacked. No assurance societies exist.

Treatment had full scope. 1st, sweating, warm clothing; 2nd, M'Kenzie's powders; 3rd, Mr. Graham's Capillic system; 4th, Dr. Smart's; 5th, Professor Dick's, which I must say succeeds better than the preceding; 6th, chlorate of potass; 7th, tar and Castile soap, &c. Those that were least doctored got on best. The greatest number of recoveries took place in a lot of 68, whose owner lost heart and left them exposed, with no shelter, to all the inclemency of the weather, with free access to water, but with no medicine; 23 of these recovered. I don't think one recovered by the steaming process. I have known stocks affected which had no contact with diseased, and have known it carried through the atmosphere as the wind blows.

I have had 103 deaths and 22 recoveries among the stock of eight Irish dealers brought to Falkirk Tryst; value 1050*l.* Among the stock of twenty farmers I have had 241 deaths and 17 recoveries; value 2726*l.* 15*s.*

The districts of Falkirk, Stirling, and Denny were all but universally involved in the disease, and at the beginning of November it was conveyed to Grangemouth by some cattle belonging to Mr. Simpson of Town Croft, and which had been just brought from Denny Loanhead as having been in too close proximity there to infected Irish cattle. It rapidly extended here, and many farmers in the districts lost severely.

In the end of October as many as 13 carcases lay for nearly a week in a field at Dunipace tollbar, the owners being without funds sufficient to bury them, and the same occurred in other places as well.

Up to the middle of December the progress of the disease had been rapid and calamitous in this county. Since then it has somewhat subsided, yet during the last fortnight not less than 200 deaths had taken place, and every day revealed fresh outbreaks.

Privy Council Returns, January 27th. Stocks attacked, 238—containing 4035 cattle: killed healthy, 190; attacked, 2838; killed, 64; died, 1824; recovered, 405; unaccounted for, 545.

SUFFOLK.

In the neighbourhood of Ipswich the Plague broke out in the first week of July, in the Houne Hundred on the 14th July, and in the same month in the extensive marsh lands near Beecles in the northern parts of the county. This last outbreak was traced to Dutch beasts that had been put to graze on the corporation marshes. On the 1st September it appeared near Harwich among 3 Dutch beasts bought on the 25th August at Mr. Sexton's sale at Harwich. In the first week of September an outbreak took place at Hawstead, West Suffolk, caused by 3 beasts brought from Norwich Hill, and purchased by Mr. Orbell at Bury St. Edmunds. At Milford an outbreak took place, due to Irish beasts also bought at Bury St. Edmunds. Other outbreaks took place at Worlington, Walsham-le-Willows, Gislingham, Rickinghall, Coddenham, Mickfield, Holton, Knoddishall, Carlton, &c., in the course of September. In the parish of Milford alone by the end of September 187 beasts had died in addition to those that had been slaughtered as fit for consumption. It still prevailed at Milford in the end of October, but seemed to have subsided at Ipswich, Samford, and Bosmon Hundreds. In December it spread to Eye, Occold, Stoke Ash, Cosford, Lidgate, &c. At the commencement of January

Sudbury district was reported clear. Over the whole county, however, there is still a weekly increase.

LOTHINGLAND AND MUTFORD.—*Mr. P. P. Harvey.*—The Plague broke out on the 8th August, and there were 16 outbreaks in all. In some infected localities there were 500 or 600 cattle, in others none except those attacked were within two or three miles. Number attacked, 100; died or were slaughtered, 81; recovered, 19. None now remain. It seems in many cases to have become less virulent of late. For prevention I would recommend killing all foreign stock as they are landed, and preventing the removal of cattle from place to place for a time. Treatment is useless; quite as many recover if left to nature. An assurance association has been formed in the district.

BOROUGH OF BURY ST. EDMUNDS.—The only outbreak appeared on September 28th; 16 beasts were attacked, and all were slaughtered. An insurance society exists in the district.

MILDENHALL.—*Mr. Ed. Petley.*—The malady broke out on the 18th October; 3 cattle were attacked, 1 of which died, and 2 were killed. It was introduced through a purchase. Cattle trade is almost suspended, and an assurance society has been established to meet the losses.

IPSWICH AND NEIGHBOURHOOD.—*Mr. Shorten.*—The Plague first appeared about the first week of July. There have been 31 different outbreaks; 160 animals were affected, 37 died, 114 were killed, and 9 recovered. Since October 14th no new case has happened; at that date 6 were buried and 14 slaughtered for food out of one herd; 34 beasts pastured in adjoining enclosures escaped. The risk of contaminating the healthy is too great to allow of treatment. Even in walking home from an infected shed virus may be left on the roads, &c. The Plague cannot cease in country districts until cattle are prevented from being sent into the country after standing in the Metropolitan Market.

HOXNE HUNDRED.—The first cases occurred on the 14th July, and it has appeared on seven different farms containing about 150 head of cattle; 40 were attacked, 23 died, and 17 were killed. Some farmers have purchased recently with good results. The disease is diminishing. A mutual assurance society has been established in the district.

Privy Council Returns, January 27th. Farms attacked, 307—containing 2933: killed healthy, 231; attacked, 1670; killed, 629; died, 810; recovered, 141; unaccounted for, 90.

SURREY.

Lambeth, Brixton, and other localities on the Surrey side of the Thames became infected almost at the first appearance of the disease in England; but the effects of the malady were less felt here than in the northern parts of London for from one to two months after the outbreak. The rural districts of Surrey maintained a comparative impunity until the second week of August, when the disease appeared in two or three localities in the neighbourhood of Dorking and Guildford. At Fetcham 38 beasts have died in the course of ten days, the outbreak being traced by the owner to the fact of his having a farm on the Essex shore contiguous to the place where Dutch cattle were landed for the London market. The losses in these country districts have been comparatively limited up to the time we write, considering their proximity to the metropolis.

GUILDFORD.—*Mr. S. Evershed.*—A great many farmers in the district have been visited by this dreadful Plague, and the losses sustained have been immense. I am trying various methods of treatment, among others the vapour bath.

WANDSWORTH.—*Mr. W. Cheesman.*—No Plague has appeared in the immediate neighbourhood. The nearest I have heard of were at Tooting and Merton, the owner at the latter place having only 7 or 8 left out of 130 cows.

Privy Council Returns, January 27th. Stocks affected, 157—containing 3061 head: killed healthy, 347; attacked, 1295; killed, 453; died, 647; recovered, 111; unaccounted for, 84.

SUSSEX.

The first outbreak appears to have been in the end of August or beginning of September, and since then the Plague has maintained its hold on the county without any very marked variation either as regards increase or decrease, though on the whole considerable losses have been sustained. The latest reports are much more satisfactory than the preceding ones, the disease appearing to have almost subsided.

ARUNDEL.—*Mr. H. Croft.*—The first outbreak here occurred on the 1st September. The following are the numbers recorded in this district:—

Name and Residence of Owner.	Total No. of Stock.	Attacked.	Died.	Diseased animals killed.	Healthy animals killed.	No. exposed to disease and escaped.
Mr. J. Suter, Walberton ...	30	1	1	..	..	29
,, Bennett, Felpham	10	4	..	4	..	..
,, Elliott, Rackham	36	10	4	6	..	1
,, Robinson, Amberley ...	76	3	1	2	3	3
,, Carpenter, Amberley...	14	7	3	4	..	1
,, Rose, Amberley	16	2	1	1	4	..
,, Newell, Amberley	2	1	..	1	..	1
,, Mundy, Felpham	13	2	..	2	1	10
,, C. Duke, Arundel	85	18	3	15	3	..
,, J. Duke, Leominster ...	175	2	..	2	6	..
,, Humphrey, Amberley ..	90	1	..	1	14	..
,, G. C. Coote, Tortington	198	2	1	1	11	..
,, W. Duke, Leominster...	88	5	1	4	2	..
,, Parris, Ford	8	5	..	5	3	..
,, Baker, Leominster......	35	1	1	..	..	7
,, G. Crouch, Yapton......	6	1	1	..	..	..
,, G. Boniface, Ford	154	12	3	..	9	9*

* Under treatment.

In two outbreaks recently-purchased sheep had been put on the farms immediately before, and the malady was without doubt introduced by this means. For two months, or since Barnett Fair, no fresh stock has been brought into the district, and now not a case of Plague exists.

For prevention I would counsel to slaughter and bury the diseased, and if any healthy beasts have herded with them, and are at all fit for the butcher, let them also be killed. If treatment is determined, let all healthy beasts be removed to the distance of at least a quarter of a mile. Remove those that have herded with the diseased, placing them under cover, and as far from each other as possible, leaving the diseased to the premises where it first broke out. Kill all the worst cases, and give the remainder saline aperients, vegetable and mineral tonics, and, if no appetite, thick gruel thrice daily. Indulge the appetite as much as possible. Under this treatment 8 yearlings recovered out of 12, but all the 8 were mild cases: twenty-four hours in every case decided their fate. Before this all remedial measures had proved abortive, on account of the rapid progress of the malady. In all cases where the mouth has been much affected, the chances of recovery have been few.

Privy Council Returns, January 27th. Farms involved, 188—containing 3851 cattle: killed healthy, 308; attacked, 1179; killed, 520; died, 544; recovered, 94; unaccounted for, 21.

WARWICKSHIRE.

The Plague appeared on the 20th August at Meriden, near Coventry, 10 beasts being attacked, and 5 recovered. Another outbreak was reported at the same time from Hurley, near Coleshill. Isolated outbreaks appeared at intervals in different parts of the county, and ultimately broke out with great violence at Burton Dassett, on the verge of Oxfordshire, at Guy's Cliff, and at Milverton. It was very violent in these localities in the middle of December, and has prevailed with much intensity since, the numbers having shown a steady weekly increase.

Rugby.—*Mr. Walker Watson.*—The Plague appeared in this district on the 30th August. There have since been six outbreaks, five being nearly at the same time, and due to the continued movement from place to place of two bulls brought from Rugby Fair. The total number of beasts affected was 27, 18 of which died, and 9 were killed. The recent cases have been the most rapidly fatal. Farmers avoid buying, and this has a good effect in keeping the disease within narrow bounds. Treatment seems of small avail. As regards prevention, I would recommend stopping all traffic in live cattle, and subject foreign stock to quarantine.

A county insurance, named "The Warwickshire Mutual Cattle Assurance Association (Limited)," has been formed, and largely availed of. The principle is one penny in the pound on the aggregate value of stock, no animal to be valued at more than 20*l.*, and two-thirds of the value to be allowed in case of loss. The insurance also includes Pleuro-pneumonia.

PETTY SESSIONAL DIVISIONS OF HENLY, WARWICK, AND BOROUGH OF WARWICK.—*Mr. James Rose.*—The Plague first appeared on September 12th, and there have been four distinct outbreaks. 19 animals were infected, 14 died, 1 was killed, 1 recovered, and 3 remain sick. Farmers generally are not buying, though two have introduced the Plague into their farms by so doing. I have adopted all the precautionary and curative measures recommended by yourself and others, but the Plague is making steady though slow progress in the district. Assurance associations have been established at Henly and Warwick.

SOLIHULL.—*Mr. A. B. Proctor.*—Here the first outbreak was on the 20th August. There have been three distinct outbreaks, in which 10 animals were attacked, 5 of which died, and 5 were killed. Farmers are not buying. One butcher and farmer bought a calf from Birmingham Market, which died of the Plague, and conveyed it to two cows on which it was put to suck. The Plague is extending, though my district is now free.

Cannon Street, Birmingham, November 25, 1865.

DEAR SIR,—I enclose answers to your questions respecting the Cattle Plague, and at the same time forward you a history of the various outbreaks which have occurred under our observation.

We are Inspectors under the Order in Council for five Petty Sessions Districts, and, taking Birmingham as a centre, our duties take us six miles in every direction except one; we are thus able to keep up communication with a large area of farmers, &c. I may here state that we have a large number of dealers in our neighbourhood. One, who is also a carcase butcher, has purchased from one hundred to five hundred beasts a-week at the Metropolitan Market; these animals are invariably foreigners. Many butchers follow the occupation of dealer, and nine out of ten buy their stock at Islington. They then bring it to Birmingham for Tuesday's market, and what they cannot sell is slaughtered by themselves, or turned out and again shown at Thursday's market. Some beasts come as often as three times to the market. The markets are inspected by us, but we never have seized any beasts for the Plague there up to this date. We have recommended that a few should be killed under our inspection, which has been done, but in no instance have we seen enough to justify us in saying that these beasts have had the Plague.

Outbreak 1st occurred at West Bromwich, Staffordshire, on July 24th. A farmer had bought a milking cow (Dutch) from one of the butcher-dealers, named Mason. She was taken home, and placed amongst the farmer's cows. Six died within nine days, or were killed. This cow was bought at Islington on July 17th. A farrier bought two calves from this infected stock, which were put with seven cows belonging to a gentleman at Handsworth. These cows all died or were killed, and the calves also, within ten days of the calves coming to the place.

Outbreak 2nd took place in Birmingham Borough, and is attributable to the purchase by a butcher-dealer of a lot of cows in the Metropolitan Market. Of these cows three at least were down-calving. Two milkmen bought the three; all three died from the Plague, and they gave the disease to four others, which died or were killed between August 22nd and September 14th.

Outbreak 3rd was at Handsworth, Staffordshire, on September 5th. The same dealer who introduced the disease to West Bromwich, as before stated, imported some bullocks from Ireland, and sent them direct to London Market of August 28th. They were not sold there, and were sent to Wolverhampton Market of the 30th. They were then sent to Birmingham Market of August 31st. Another butcher bought two and one died on the 5th September in his field at Handsworth. The seller turned his four out (there being six in all) at Handsworth, about a mile and a quarter from the other two, and, after slaughtering three for his own trade, one died in his field on the same date. Three beasts in adjoining fields died within ten days, or were killed for the disease. From the other one first described that died serious consequences resulted. Two stirks of a herd of six, turned out in a field, only separated by some iron hurdles from the one that died, were seized with the Plague. Both were killed on account of it. A cow on the other side of the turnpike-road, about sixty yards off, was seized and killed within eighteen days. We attributed the fact of this cow having the disease to the coachman having been particularly busy in going to the neighbour's stirk while she was ill, and then touching and feeding his cow. This cow was first seen to be ill exactly a fortnight after the death of the butcher's animal on September 5th. A farmer named Hill, whose cows travelled backwards and forwards, for milking, along the lane skirting the butcher's field, had one seized with the disease on September 19th. This was again exactly a fortnight in the incubative stage. Of this herd ten were attacked, nine died or were killed as incurable, and one, a cow that slipped her calf, recovered. Three heifers, turned out with the others, escaped the disease, and four cows were slaughtered for food. The remaining four stirks were also killed for food.

Outbreak 4th occurred on a common, called Delve's Green, near Walsall, Staffordshire. Four cows, belonging to cottagers, were pastured on this land. A dealer, bringing some cattle from Walsall, is said to have left one behind on this common. She died there on August 30th or 31st, and by September 16th all the cottagers' animals were dead. The first died on September 7th.

Outbreak 5th was amongst some milking cows at Erdington, Warwickshire, in some meadows intersected by the Derby Railway. Five cows died or were killed as incurable by September 18th. Four healthy ones were "converted into beef." Six calves that had got in amongst these cows escaped, as did also two old cows. Here there is no evidence of direct contagion, neither was there before nor since any Plague within four miles of the spot. No new animals had been bought in for months.

Outbreak 6th was at a farm at Handsworth on October 28th. No new stock had been bought for a long while, and we have no evidence of direct contact with diseased animals. This farm is surrounded by dealers' fields, but careful inquiries have been made, and no case has occurred within half a mile; and there were cows turned out *between* the two farms which have been perfectly healthy. Three died, and four were killed. One recovered, and three milking cows that had been in the same field with the diseased ones have escaped hitherto, and, it now being four weeks since contact, they may be considered safe.

Outbreak 7th.—This again is an instance where we are not able to trace the disease to contagion. The place is situated on the high road from Birmingham to Walsall, and a large number of foreign beasts and sheep are driven along this road twice a week from the London Market. We cannot glean that any strange animals have been on the premises, which are situated at least two miles from the outbreak No. 6. Two cows and a calf have died since the first appearance of the Plague on November 10th, and we have just received information that another heifer is ill.

Hitherto we have been very fortunate in confining the disease to small areas. Notably in 2nd, 3rd, 4th, and 5th outbreaks. We have generally advised that the apparently healthy animals should be slaughtered, and in no case have we killed any diseased ones without the owner's consent. The first outbreak was before we were appointed Government Inspectors, and part of these infected animals took the disease to Kingsbury, near Tamworth, and caused several deaths from Plague. Others were sent to the Eastern Counties on August 3rd, and possibly some of the cases in that district may be traced to the nine beasts taken thither from Birmingham on that day, which beasts were part of the first herd described.

Yours truly,
Joseph M. Parker, M.R.C.V.S.

Privy Council Returns, January 27th. Farms attacked, 91—containing 1632 cattle; killed healthy, 106; attacked, 653; killed, 86; died, 403; recovered, 107; unaccounted for, 57.

WILTSHIRE.

The Plague was reported at Holly Ditch, near Calne, on the 12th October, having attacked 1 of 3 heifers recently purchased from Mr. Abraham Whale. Two died, and the third was killed. It was at the same time reported at Cricklade and at Brinkworth, in the latter place among a small lot of lambs belonging to Mr. Philip Whale. In the northern and north-western parts of the county the Plague still continues to exist, though the southern parts have continued free. It has never attained any extended prevalence, and seems now to have almost subsided.

Privy Council Returns, January 27th. Farms attacked, 24—containing 663 cattle; killed healthy, 37; attacked, 118; killed, 46; died, 52; recovered, 15; unaccounted for, 5.

WORCESTERSHIRE.

The Plague broke out in the north of Worcester in October, and continued to exist there without spreading, for up to January the remainder of the county was reported free. Early stoppage of fairs and markets and the prohibiting strictly any removal of stock no doubt contributed to this end. The latest reports show that the Plague has almost ceased to exist.

Privy Council Returns, January 27th. Farms attacked, 12—containing 173 cattle; killed healthy, 3; attacked, 47; killed, 11; died, 26; recovered, 8; unaccounted for, 2.

YORKSHIRE.

The first appearance of the disease in this county was in the beginning of September, in the Thorpe Hall pastures, near Leeds. These pastures contain about 100 cattle; these are frequently changed, and the animal first attacked, a foreign bullock, had been brought from Hull, sold in Leeds market, and put into these pastures about three weeks before he took ill. The sewage from the Leeds slaughter-house flows into the river Aire, which runs for a long distance along the side of these pastures. The number of cases in the pasture gradually increased for a month, when several outbreaks took place in other herds in the vicinity of Leeds.

About the 20th October an infected Irish bullock was found on the roadside near York, and was at once destroyed. Four different outbreaks were reported at the same time at or near the village of Wilstrip, about eight miles from York. On the 31st October an outbreak was reported at the Green, near Settle, in the Craven district, one of the richest grazing parts of Yorkshire. Two calves, recently brought from Manchester, were the first victims, and the other stock soon caught the contagion. About the same time it broke out at Bradford, Malton, Hull, and most districts of Yorkshire, with the exception of those in the western division of the county. A great number of the outbreaks were distinctly traceable to York market, which was long kept open.

The following quotation from *The Times* will show how the disease was met in Yorkshire generally:—"The poleaxe as a remedy has been superseded by medical treatment, which in several cases has proved successful. Killing and not trying to cure is everywhere condemned and discountenanced *in toto* by the Malton bench. The result of this mode of treatment has been, that the Plague has attained to most serious dimensions, and the losses have probably been more serious, even proportionately, than in any other English county."

HORNCASTLE.—*Mr. Thomson.*—The Plague has not yet invaded my district, though I am in daily dread of its appearance, as it is decidedly increasing in the county, and has attacked some cattle in the adjacent district, near Spilsby and Boston. This outbreak was clearly traced to 3 cows exposed for sale at Partney September Fair, and which came from the neighbourhood of Leeds.

We have an assurance association for cattle in the district. I think at least the ports should be closed against foreign cattle, whatever other preventive measures are adopted.

HARROGATE.—*Mr. Dearlove.*—The Plague has not yet reached us, though playing sad havoc within eight or ten miles, the nearest point being Knaresborough. There a herd of 24 Irish cattle unsold at the fair held in the middle of October were put into a pasture near the town; only 4 or 5 now remain, and are not likely to recover. A few more cows have died in Knaresborough, and it extends north, south, and east of the town, but luckily our side (west) is yet free.

Inspectors generally are in ill favour, from errors in diagnosis, and caprice in carrying out their functions—killing all the diseased on one farm; treating all on a second; and neither slaughtering, treating, nor separating on a third, but leaving them in the open fields to infect adjacent stocks. Power to kill without indemnity is felt on all hands as a monstrous injustice. One man suffers for the good of his neighbours and the country at large, and surely the latter should compensate for these losses.

LEEDS, WEST.—*Mr. Cuthbert.*—The first case was on the 14th October in a beast purchased a few days before at a neighbouring fair. There are about 450 beasts in the infected locality, 11 have been attacked, 5 died, 3 were killed, 1 recovered, and 2 remain sick. The Plague is extending, and few care to buy. There is no assurance society in the district.

WENTWORTH, ROTHERHAM.—*Mr. Peech.*—There is no disease in the immediate neighbourhood, chiefly owing, I believe, to care in buying. Adjacent districts have suffered greatly. I think evil has resulted from the manner in which inspectors have gone from sick to healthy beasts, and far more from open markets.

SOUTH AUSTON, ROTHERHAM.—*Mr. W. B. Taylor.*—No cases have occurred nearer to this than ten miles. Early in October I wrote a small pamphlet and sent round the district, warning farmers of the malady and recommending precautionary measures, which I believe have been useful. Many losses have been sustained near Doncaster. One outbreak there was caused by 12 bulls bought in Doncaster market, which took the Plague a week later: they were put in a shed not *ten* yards from the Great North Road, and treated, but all died or were shot. The five farms nearest this shed soon got contaminated, and in the order of their proximity. On one farm all the cattle at all fit for the butcher were sold, leaving about 96 to be treated, not one of which, I understand, recovered, and a week ago only 3 or 4 were left alive. The inspector has resigned. I found on two farms that the pigs were constantly fed on the refuse food of the diseased cattle, covered with their saliva, and mixed freely with them, but did not suffer in any way. On another farm where I made particular inquiries the sheep ran amongst the affected cattle and fed with them without in the least suffering, though the cattle have now *all died* both young and old. I have had to treat many flocks of lambs this year, and many farmers have lost these largely from want of timely attention. In all cases I found filaria bronchialis, against which the lambs bore up badly. This year parasites on both animal and vegetable kingdoms seem to have been more prevalent and hurtful than usual. The freshness of the young clovers seems to have produced an inflammatory constitution which rendered even a small number of worms injurious. Where diarrhœa ensued the cases did best; where this took place the lungs were not implicated, and no fatal lung cases purged. They were successfully treated by changing to bare old pastures, folding at night, and giving linseed mucilage of turpentine, linseed oil, liq. ammon. acet., sp. ætheris nitrici, and tartar emetic, with bleeding from the nose.

When the digestive organs are affected, the symptoms and post-mortem appearances strongly resemble those of Rinderpest, yet in all cases I found great quantities of worms in the large intestines rolled together in bundles. These I conceive kept up irritation in the bowels, giving rise to the coffee-coloured evacuations, and soon kill the lamb. I have seen nothing more resembling the Plague, and doubtless many cases of great fatality from the Plague are of this kind. It is not at all infectious, though when the liquid brown fœtid stools occur nothing seems able to save the patient. At an earlier period alkaline solutions with stimulants and turpentine seem most efficacious.

KEIGHLEY.—*Mr. Emmott.*—The first case of the Plague that came under my notice was on the 8th July, in what was called a Hamburg beast. I was not cognisant of its existence in the country at that time, but from a recollection of your lectures I recognised the disease. I treated her with stimulants and mineral tonics, but she died. I have since learned, on good authority, that a nobleman's steward purchased 10 out of the same lot, and that these took ill, most died, and all had to be destroyed. The cargo had been landed at Hull early in July. I could not learn what became of the remainder.

The next case happened on Wednesday, the 8th November, among cattle from Leeds Cattle Market. I detected the disease in one while inspecting the cattle at the Midland railway-station; next morning another showed symptoms of Rinderpest, and both were destroyed. A third bullock belonging to the same butcher, Mr. Elison, was attacked on the 15th, it was killed and buried, and the rest of the lot were at once slaughtered for food. The three seized were foreign beasts. To-day (18th November) I have found the characteristic lesions of Rinderpest in a foreign cow found dead in a field at Wilsden. She was near the calving, and had been bought in Leeds Market on the 8th inst. Few farmers risk to purchase. The Plague is extending here.

To prevent I would recommend to stop importation from countries where the disease is generated spontaneously, and from all where it exists; slaughter at the landing-ports all of which there are doubts; stop all fairs and markets for a time; allow cattle only to change from place to place under the guarantee of a certificate of health from a legalised veterinary surgeon, bearing that they are from a locality at least one mile from the nearest centre of contagion.

Treatment should be stimulant, in my opinion, and sulphate of iron may be given as a tonic. We have a general insurance society and a local one, which must fail if we have much disease.

Barnsley.—Here the Plague broke out on October 14th. There have been two outbreaks—one at Skelinanthorp, and one at Ryehill; both among stock bought at a recent market. At the former place there were about 200 cattle, at the latter 300. Only 24 have been attacked; 10 of which died, 10 were killed, and 2 recovered. The disease seems extending. No assurance society has been formed.

Ouse and Derwent.—*Mr. Bowman.*—The Rinderpest broke out in this district on the 31st October, and all cattle brought here from York Market since the 1st November have communicated the Plague. There have been in all seventeen outbreaks in localities containing from 600 to 1000 cattle. 70 in all have taken the disease; 31 have died, 1 was killed, 9 recovered, and 29 remain sick. The Plague is undoubtedly extending. No assurance society has been formed in this district.

Rudforth.—*Mr. G. Hain.*—The first outbreak was on the 3rd November in a herd of cattle bought by Mr. Plummer, Rudforth, at Borronbridge Fair, on the 22nd October. It also broke out among other two lots from the same fair, and among two herds from York Fair, which was held fourteen days ago. 65 were affected; of which 40 died, 11 were killed, 5 recovered, and 65 remain sick. Farmers have stopped buying, yet the Plague increases in virulence. There is no assurance association for stock in the district.

Goole.—*Mr. B. Duff.*—The Cattle Plague broke out here in the end of August or beginning of September. There have been six outbreaks in all in a locality numbering about 2000 head: 48 beasts were attacked; of which 42 died, 13 were killed, 1 recovered, and 5 remain sick. The disease is steadily extending. Farmers buy sheep in place of cattle, a few buy the latter from neighbours. No assurance association exists in the district. To prevent I would recommend slaughter of diseased, a separation from healthy; for treatment careful nursing, stimulants, and feeding on boiled linseed, and other easily-digested food.

Wath-upon-Deam.—*Mr. M. Stone.*—It broke out at Wath on the 21st October, and at Swinton (two miles distant) the day following. It occurred among dealers' cattle which had been exposed in different neighbouring fairs. Up to the present time 42 beasts have been attacked, 9 have died, 15 have been killed, 7 have been cured, and 11 remain under treatment. Farmers have not bought in any stock since the malady appeared. No assurance society has been formed here. The type of the Plague appears to have become milder since it first broke out, and I have found diffusible stimulants, such as chloric æther, ammonia, &c., given in oatmeal-gruel frequently, with counter-irritation to the chest by blisters and setons, to be of great service.

Market Weighton.—*Mr. J. Cooper.*—The Rinderpest first appeared in this district on the 18th November among some cattle bought at York Market.

There have been fourteen outbreaks; 91 beasts were affected; 48 died, 13 were killed, 15 recovered, and 16 remain sick. On the infected farms 104 beasts remained free from the disease. At the present time it is rapidly spreading, and has got such a firm hold that it seems impossible to prevent its spread. If the markets had been stopped two months sooner I believe we would not have had the disease in East Yorkshire. All the early cases were traceable to beasts bought in the York fortnightly cattle markets, or at Beverley Fair, on the 6th November. Nothing short of complete isolation can stay its progress. Farmers are not buying stock at present. An unsuccessful attempt was made to get up an assurance association.

Privy Council Returns, January 27th. Farms affected, 3212—containing 3962 cattle; killed healthy, 3555; attacked, 19,331; killed, 924; died, 11,863; recovered, 3034; unaccounted for, 3510.

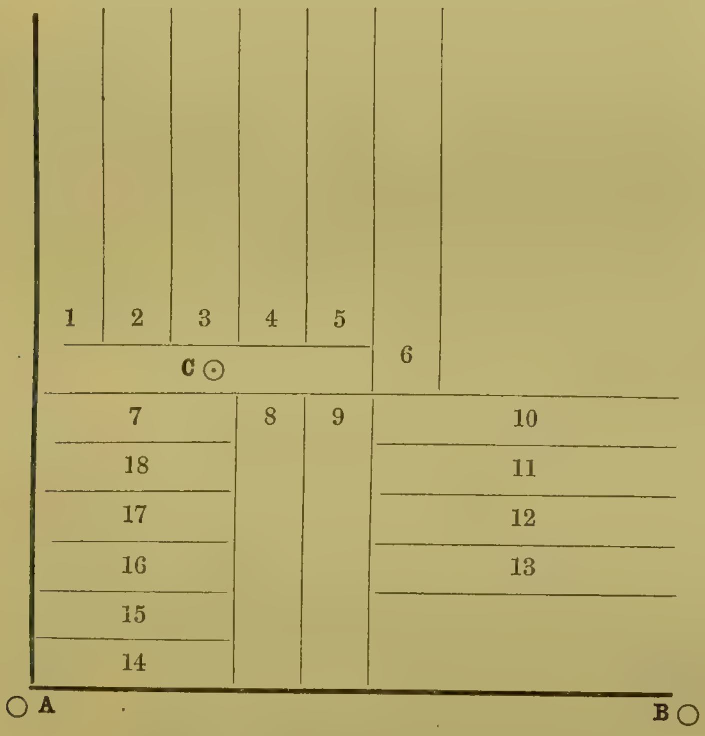
It will be gleaned from the foregoing pages that I adhere to an opinion expressed by me last autumn, that the Cattle Plague was imported into England from Russia, through the Baltic, at the end of May, 1865. The theory that the disease came to us through Holland has been disproved. Holland was contaminated by stock from England in July. That the malady reached us from Austria is quite contrary to our experience of the results of traffic with that country, and the outbreaks by Rinderpest in the Austrian dominions were fewer and less important in 1865 than in any previous year for a long time past.

The first outbreak of the Cattle Plague in London succeeded the importation of the Russian stock, and from London the malady was propagated in all directions. I regret that the historical details as to the disease in the counties of Great Britain are not more complete; but I have collected together what facts have come to my knowlege, and they furnish a satisfactory indication of the progress of the disorder.

THE CATTLE PLAGUE IN HOLLAND.

Mr. Defries, a Dutch cattle salesman, received in the month of June some fat oxen from his father near Schiedam, for sale in the Metropolitan Market. Twelve of these animals were shown on the 22nd, 26th, and 29th of June, and 11 on two of these occasions. In the intervals between the market days the cattle were placed in Mrs. Nicholl's lairs and fields, where the Plague prevailed. The highest sum offered was 13*l.* 10*s.* per head, and this being below the value of the oxen they were sent back by Blackwall to Holland in the ship 'Batavia,' on the 2nd of July. Mr. Simmonds, the veterinary inspector at Blackwall, saw these animals embarked, noticed their sickly look, but had no power to prevent their exportation. Mr. Defries sent the cattle to Kethel, near Schiedam. By the time they reached their destination 6 were affected, and supposed to be suffering from the Foot-and-Mouth Disease. Several of the sick cattle were sold to a butcher and tanner in Schiedam, others were sent to the market at Rotterdam, and one of the oxen sank on the road side between Kethel and Schiedam, and was there slaughtered; others were taken to the Hague, so that the first Plague-stricken animals in Holland were distributed in various directions. The presence of the Plague in Holland was determined by Professor Hengefeld, of Utrecht, on the 18th of July.

The son of the farmer where the oxen had been sent to feed near Kethel, not only attended to these animals but milked his own cows. He had a herd of 100 grazing in a polder about 870 paces distant from where the sick cattle were lying. On the 27th of July the first case occurred in this herd of cows; other cases followed on the 4th of August. And the Plague progressed through the whole herd, out of which 39 sick and infected animals were sent to the Rotterdam Market in the month of August. Several herds in the vicinity were directly and indirectly infected, and Professor Gerlach has furnished a diagram of the relation between this and other herds, which I here reproduce.



A. Kethel where the Plague appeared.
B. Schiedam.
C. The field containing the herd of the Kethel farmer.

The Plague-stricken cattle at C were in direct communication with the cattle in the fields from 1 to 9, and in indirect communication through the herds from 7 to 9, with those in the fields from 10 to 18.

The district in which the Plague broke out is one famous for its distilleries, where large numbers of cattle are kept, and at the time of the disease appearing it contained from 23,000 to 24,000 bovine animals. Through the Rotterdam Market the malady was propagated by the end of July and beginning of August into various parts of South Holland; by the end of September sixty-six places in this province were infected.

Other parts of Holland began to suffer, and amongst the earliest were Amsterdam, Lijenmuiden, Breukeln St. Peter, Maarssenweem, Maarssen near Utrecht, &c. Immediately on the communication of the disease to the Dutch cattle, animals with the Rinderpest were exported from Rotterdam to London, and numerous outbreaks in this country were traced to Dutch stock so imported. These outbreaks led to inquiries on the part of our Government, which proved that the Dutch people were in ignorance of what had befallen them, and that they had had the malady a fortnight or three weeks without the Dutch Government having been made aware of what was going on near Schiedam.

The Dutch statistics are singular as affording proof of the mildness of the Plague in Holland. There is one source of fallacy that must not be overlooked on this point. We have distinct evidence that the Dutch have sold out their herds to be shipped for England. This was carried on very extensively during the first outbreak of the disease, and it would be really interesting to have a complete and satisfactory analysis of the Dutch tables.

The last general report published on the 3rd of February show that there have been—

Animals attacked.	Dead.	Slaughtered.	Recovered.	Remaining sick.
31,165	9,643	7,846	10,962	2,714

The experiences in Holland as contrasted with those of France and Belgium are most interesting as in favour of the stamping out of the disease.

THE CATTLE PLAGUE IN BELGIUM.

The Steppe Murrain was introduced from Holland into Belgium by infected cattle, but the exact date of the first introduction of the disease is unknown. The Belgian Government was for the first time officially informed of outbreaks of the disease at Hofstade and Alost on the 30th of August. The malady was propagated rapidly, and sixty-six outbreaks occurred in forty-two communes of six provinces. This was really the first invasion of the disease, which was met most promptly by the Government, and up to the end of the year 1865 the statistical return was as follows:—

Provinces.	No. of infected communes.	Animals slaughtered.		Dead.	Total slaughtered.
		Infected.	Sick.		
Antwerp	2	0	3	1	3
Brabant	6	27	40	27	67
West Flanders	16	32	88	9	120
East Flanders	12	64	131	1	195
Hainault	8	6	19	6	25
Limbourg	1	0	3	2	3
Total	45	129	284	46	413

Making up a total loss of 459 animals.

The losses have thus been limited to a very small amount by the "stamping-out system," in spite of the facilities of transit between Holland and Belgium. The sum it has cost the national exchequer has amounted to 3680*l.*, in addition to the small sum not yet estimated for the service of veterinarians engaged in extirpating the disease. The country is at present clear, and there is every probability of its continuing as free as it has been since the 24th of November.

THE CATTLE PLAGUE IN FRANCE.

No sooner had we openly declared the existence of the Steppe Murrain in Great Britain than the French Government appointed a commission—not of noblemen, members of Parliament, and physicians—but of veterinarians, to investigate the nature of the outbreak and suggest preventive measures. The report afterwards published by M. Armand Béhic, Minister of Agriculture and Commerce, was inspired by such a man as Professor Bouley of Alfort, and the ports of France from Nantes to Dunkirk, through which there was a probability of the disease entering, were closed by an order of the 5th September, 1865. The disease however appeared on the Belgian frontier, whither M. Lecoq, Inspector General of Veterinary Schools, was sent with sufficient funds to indemnify owners and stamp out the Plague. An animal purchased at Malines on the 3rd of September communicated the disease to the department of the Nord and Pas de Calais, and the outbreak was killed out with a loss of 43 animals. There was a report of a subsequent attack amongst cattle, which seems to have been of a very doubtful nature; but in a scientific point of view the most interesting outbreak since the origin of the Steppe Murrain in Western Europe in 1865 has been the communication of the disease to the animals of the Acclimatization Society, by two gazelles purchased by M. Geoffrey St. Hilaire from Mr. Jamrack, a dealer in Shadwell at 180 St. George's Street. The gazelles had been in Mr. Jamrack's possession a couple of months, and were kept in a stall between a number of animals of all kinds. One gazelle had died, it is said of cold, before the two gazelles were imported. Mr. Jamrack's stables are surrounded by dairies in which the Cattle Plague had existed. It is not far from slaughter-houses; and on the occasion of a visit I paid there with M. Bouley we saw raw meat, bullocks' hearts, &c., hanging up where all the animals were enclosed. The gazelles were placed in boxes and sent from London Bridge to Newhaven in a waggon constantly used for conveying hampers of meat from London into the country. The gazelles reached their destination on the 15th of November in apparent health, but five days afterwards one of them showed signs of illness. They had been placed in a small stable divided in three compartments, and in two of them was a Muntjac deer and a Brazil deer. The first indication of one of the gazelles being ill was on the 19th, when they were removed to a large stable composed of a central space and two wings. The one wing where the sick gazelles were placed contained 11 yaks, 4 zebus, 1 polled Norman cow, 2 camels, a springbock antelope, 3 gazelles, 2 sheep, and 22 goats. The central space was occupied by 2 aurochs, so that, including the other animals with which the gazelles were placed at first, a total number of 50 animals had been more or less in communication with them. The gazelle which fell sick on the 19th died on the 24th; but this did not excite any attention, as it was not unusual to lose newly-bought animals. The first gazelle that died was sent to M. Verseaux, a naturalist, in the Place Royale, and its viscera could not afterwards be traced. On the 25th the second gazelle fell ill, and M. Leblanc, senior, veterinary surgeon to the society, was called to examine the animal whilst on his ordinary visit to the gardens. M. Albert Saint Hilaire had noticed that a number of animals in the same stable had refused their food that morning, and from M. Leblanc's examination the strong presumption arose that they were affected with Rinderpest. Professor Bouley was called in, and removed all doubts on the subject. The symptoms were great depression, greenish liquid discharge from the nose; injection of the conjunctiva; flow of tears; quickened breathing; deep redness of the gums round the incisor teeth, and a discharge of grey or yellowish fluid excrement. There were twitchings of the head and general tremors, and on the second day the respiration was attended with moaning.

Seventeen animals were recognised as sick on the 30th of

November. They were seven yaks, a zebu, a cow, a springbock antelope, four gazelles, including the one from London, a male auroch, a Muntjac deer, and a Brazilian deer.

A young yak, three-parts bred and four months and a half old, was slaughtered. A post-mortem examination revealed the ordinary lesions of Rinderpest. The gazelle from London was then killed; and although the lesions it presented were less marked than those of the yak, they were nevertheless distinct. On the 1st of December a female yak was killed, and on the same day the male auroch was depressed, and evidently affected; the female was still lively. On the 2nd of December three gazelles were killed, besides an old male zebu, a polled Norman cow, and the Brazilian deer. Two yaks were slaughtered on the 4th December, and one presented marked ulceration of the mucous membrane of the pyloric end of the stomach, of the duodenum, and cœcum. The other, the female, had some fribinous deposits varying from the size of a pea to a nut adhering to the coats of the small intestine. A gazelle of Cuvier, the Muntjac deer, and two goats were also sacrificed. Three goats and an antelope were killed on the 5th of December. On the 6th another gazelle was killed, and the female auroch sickened. On the 7th a common goat and five goats from Senegal were destroyed. On the 9th a Brazilian deer was killed, and on the 10th the female auroch died. After this four peccari took the disease, and 34 animals in all died, or had to be destroyed before the Plague was stayed. Thus ended the most remarkable outbreak of Rinderpest ever recorded. I had entertained a suspicion that deer would take the disease, and proved this by submitting a buck to infection in the Albert Veterinary College; but the valuable evidence as to the many and varied kinds of animals susceptible to, and hence probably frequent carriers of, the disease, could only have been obtained by the misfortune which befel the French Acclimatization Society—a misfortune yielding great and valuable scientific results.

CATTLE PLAGUE ENQUIRY.

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865.

These Returns do not profess to give the Total Number of Cases which have occurred in Great Britain, but only those which have been ascertained from the Official Information received at this Office from Inspectors, whether appointed by the Clerk of the Council or by the Local Authorities. Columns 1 and 2 only record the Cases reported as having commenced during the Weeks indicated by the Headings; "BACK" Cases being added to Column 3.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 4, 1865.	Remaining from last Week's Report, to Nov. 4, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 4th, 1865.				
			Attacked during Week ending Nov 4, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	30	8	1	7	2	28
Berks	..	33	..	..	..	..	33
Buckingham	..	17	9	3	4	5	14
Cambridge	..	5	27	18	5	..	9
Chester	..	..	12	1	3	..	8
Cornwall	..	..	..	..	..	..	..
Cumberland	..	..	..	..	..	..	..
Derby	..	3	15	9	4	..	5
Devon	..	5	2	1	2	..	4
Dorset	..	..	..	..	..	..	..
Durham	..	3	27	8	4	1	17
Essex	..	130	27	1	23	6	127
Gloucester	..	3	13	7	5	..	4
Hants	..	12	10	1	9	2	10
Hereford	..	..	..	..	..	..	..
Hertford	..	13	6	1	2	11	5
Huntingdon	..	12	13	8	4	1	12
Kent	..	58	34	13	16	3	60
Lancaster	..	12	31	1	15	4	23
eicester	..	3	..	..	..	..	3
incoln	..	3	4	2	2	2	1
Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	..	145	89	52	29	1	152
Northampton	..	9	7	2	3	1	10
Northumberland	..	41	52	17	33	8	35
Nottingham	..	1	2	1	2	..	..
xford	..	2	4	2	..	..	4
utland	..	..	..	..	..	..	..
alop	..	4	9	7	..	..	6
omerset	..	..	..	..	..	..	..
tafford	..	4	18	6	5	3	8
uffolk	..	51	8	4	3	4	48
urrey	..	103	12	3	13	15	84
ussex	..	26	18	8	9	..	27
Varwick	..	24	41	15	14	3	33
Vestmoreland	..	..	..	..	..	..	..
Vilts	..	..	..	..	..	..	..
Vorcester	..	..	..	..	..	..	..
ork	..	46	108	31	54	12	57
OUNTIES OF ENGLAND	..	798	606	223	270	84	827
METROPOLITAN POLICE DISTRICT	..	546	49	24	12	6	553
ENGLAND TOTAL	..	1,344	655	247	282	90	1,380

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 4, 1865.	Remaining from last Week's Report, to Nov. 4, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 4th, 1865.				
			Attacked during Week ending Nov. 4. 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	..	13	52	2	29	3	31
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	..	13	52	2	29	3	31
SCOTLAND.							
Aberdeen	..	..	35	35	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	1	..	..	..	..	1
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	5	7	2	1	..	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	..	..	..	..	2
Dumbarton	..	2	24	3	14	3	6
Dumfries	..	3	10	..	5	..	8
Edinburgh	..	163	57	5	45	13	157
Elgin, or Moray	..	..	..	..	..	..	..
Fife	..	58	131	10	46	3	130
Forfar	..	387	525	203	102	68	539
Haddington	..	14	11	..	7	..	18
Inverness	..	..	..	..	..	..	..
Kincardine	..	..	..	..	..	..	..
Kinross	..	1	..	..	..	..	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	..	751	184	36	151	45	703
Linlithgow	..	3	6	..	..	..	9
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	1	..	..	..	1	..
Perth	..	39	46	5	34	10	36
Renfrew	..	12	22	20	5	..	9
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	5	..	..	..	..	5
Selkirk	..	..	..	..	..	..	..
Stirling	..	124	..	..	..	..	124
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	..	1,571	1,058	319	410	143	1,757

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Oct. 28th, 1865.					
		Remaining Week ending Oct. 21.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	27	10	..	5	2	30
Berks	..	35	..	..	1	1	33
Buckingham	..	17	2	1	1	..	17
Cambridge	..	2	7	4	..	..	5
Chester	..	2	18	9	10	1	..
Cornwall	..	..	..	..	..	..	..
Cumberland	..	..	..	..	..	..	..
Derby	..	3	6	2	2	2	3
Devon	..	9	4	2	3	3	5
Dorset	..	..	..	..	..	..	..
Durham	..	2	5	2	..	2	3
Essex	..	142	26	12	11	15	130
Gloucester	..	3	..	..	..	..	3
Hants	..	13	28	4	21	4	12
Hereford	..	..	..	..	..	..	..
Hertford	..	2	13	..	2	..	13
Huntingdon	..	12	4	2	2	..	12
Kent	..	63	47	14	37	1	58
Lancaster	..	21	18	8	12	7	12
Leicester	..	3	..	..	..	..	3
Lincoln	..	1	3	1	..	..	3
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	..	116	128	37	55	7	145
Northampton	..	5	22	10	8	..	9
Northumberland	..	30	68	17	38	2	41
Nottingham	..	3	3	2	2	1	1
Oxford	..	6	3	..	3	4	2
Rutland	..	..	..	..	..	..	..
Salop	..	4	1	1	..	..	4
Somerset	..	..	..	..	..	..	..
Stafford	..	5	1	..	1	1	4
Suffolk	..	49	18	12	4	..	51
Surrey	..	97	29	12	9	2	103
Sussex	..	23	22	10	8	1	26
Warwick	..	19	21	4	12	..	24
Westmoreland	..	..	..	..	..	..	..
Wilts	..	..	..	..	..	..	..
Worcester	..	..	1	1	..	..	..
York	..	46	74	10	61	3	46
COUNTIES OF ENGLAND	..	760	582	177	308	59	798
*METROPOLITAN POLICE DISTRICT	..	547	179	107	53	20	546
ENGLAND TOTAL	..	1,307	761	284	361	79	1,344

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Oct. 28th, 1865.					
		Remaining Week ending Oct. 21.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	..	33	27	10	36	1	13
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	..	33	27	10	36	1	13
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	1	1	..	1	..	1
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	5	..	..	..	..	5
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	..	..	..	..	2
Dumbarton	..	1	11	4	4	2	2
Dumfries	..	3	..	..	..	..	3
Edinburgh	..	178	77	19	53	20	163
Elgin, or Moray	..	..	..	..	..	..	..
Fife	..	55	62	4	37	18	58
Forfar	..	197	341	19	117	15	387
Haddington	..	11	7	..	3	1	14
Inverness	..	..	..	..	..	..	..
Kincardine	..	1	..	..	..	1	..
Kinross	..	1	6	..	6	..	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	..	730	171	97	48	5	751
Linlithgow	..	15	24	2	28	6	3
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	1	1	1	..	..	1
Perth	..	14	46	3	13	5	39
Renfrew	..	11	10	3	5	1	12
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	5	..	..	..	..	5
Selkirk	..	..	..	..	..	..	..
Stirling	..	93	66	..	35	..	124
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL ...	..	1,324	823	152	350	74	1,571

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	301	180	48	90	14	28
Berks	..	817	355	86	207	29	33
Buckingham	..	627	188	87	75	12	14
Cambridge	..	447	102	60	25	8	9
Chester	..	170	37	11	17	1	8
Cornwall	..	18	2	1	1	..	..
Cumberland	..	41	4	1	1	2	..
Derby	..	276	64	35	16	8	5
Devon	..	149	82	43	30	5	4
Dorset	..	12	6	..	6	..	..
Durham	..	322	130	54	39	20	17
Essex	..	2,125	1,255	260	728	140	127
Gloucester	..	140	26	13	9	..	4
Hants	..	535	211	54	135	12	10
Hereford	..	..	..	..	..	..	..
Hertford	..	238	87	34	33	15	5
Huntingdon	..	158	73	37	23	1	12
Kent	..	1,374	768	275	406	27	60
Lancaster	..	402	157	50	68	16	23
Leicester	..	109	22	12	7	..	3
Lincoln	..	113	36	27	6	2	1
*Middlesex	..	..	..	...	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	..	2,652	1,034	446	406	30	152
Northampton	..	1,329	241	152	64	15	10
Northumberland	..	1,464	456	188	211	22	35
Nottingham	..	59	22	7	14	1	..
Oxford	..	55	20	2	6	8	4
Rutland	..	..	..	..	..	..	..
Salop	..	223	40	16	18	..	6
Somerset	..	11	11	4	7	..	..
Stafford	..	231	91	33	46	4	8
Suffolk	..	1,552	766	373	314	31	48
Surrey	..	2,352	952	371	418	79	84
Sussex	..	3,100	895	417	401	50	27
Warwick	..	808	184	52	86	13	33
Westmorland	..	..	..	..	...	..	..
Wilts	..	8	3	2	1	..	..
Worcester	..	44	6	2	4	..	..
York	..	1,319	386	91	215	23	57
COUNTIES OF ENGLAND	..	23,581	8,892	3,344	4,133	588	827
*METROPOLITAN POLICE DISTRICT	..	10,100	5,718	2,749	2,278	138	553
ENGLAND TOTAL	..	33,681	14,610	6,093	6,411	726	1,380

REPORT No. 1, FOR WEEK ENDING NOVEMBER 4th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. Note.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	..	368	222	52	132	7	31
Flint	..	11	10	1	9	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	..	379	232	53	141	7	31
SCOTLAND.							
Aberdeen	..	368	235	168	64	3	..
Argyle	..	..	..	..	..	..	..
Ayr	..	154	21	8	12	..	1
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	321	19	6	4	..	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	44	24	3	11	8	2
Dumbarton	..	103	65	13	39	7	6
Dumfries	..	163	22	3	11	..	8
Edinburgh	..	1,946	946	114	594	81	157
Elgin, or Moray	..	..	..	..	..	..	..
Fife	..	893	418	62	185	41	130
Forfar	..	4,306	1,508	359	494	116	539
Haddington	..	385	68	6	37	7	18
Inverness	..	..	..	..	..	..	..
Kincardine	..	35	5	4	..	1	..
Kinross	..	59	14	2	11	..	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	..	2,455	1,989	534	693	59	703
Linlithgow	..	207	119	36	61	13	9
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	34	3	2	..	1	..
Perth	..	648	192	57	81	18	36
Renfrew	..	200	96	57	27	3	9
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	96	9	2	2	..	5
Selkirk	..	..	..	..	..	..	..
Stirling	..	889	302	29	146	3	124
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	..	13,306	6,055	1,465	2,472	361	1,757

REPORT No. 1.—SUMMARY FOR WEEK ENDING NOVEMBER 4th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 4, 1865.	Remaining from last Week's Report, to Nov. 4, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 4th, 1865.				
			Attacked during Week ending Nov. 4, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	..	1,344	655	247	282	90	1,380
WALES	..	13	52	2	29	3	31
SCOTLAND	..	1,571	1,058	319	410	143	1,757
TOTAL	..	2,928	1,765	568	721	236	3,168

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Oct. 28th, 1865.					
		Remaining Week ending Oct. 21.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	..	1,307	761	284	361	79	1,344
WALES	..	33	27	10	36	1	13
SCOTLAND	..	1,324	823	152	350	74	1,571
TOTAL	..	2,664	1,611	446	747	154	2,928

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	..	33,681	14,610	6,093	6,411	726	1,380
WALES	..	379	232	53	141	7	31
SCOTLAND	..	13,306	6,055	1,465	2,472	361	1,757
TOTAL	..	47,366	20,897	7,611	9,024	1,094	3,168

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places, in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 11, 1865.	Remaining from last Week's Report, corrected to Nov. 11, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 11th, 1865.				
			Attacked during Week ending Nov. 11, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	28	16	1	11	..	32
Berks	..	37	4	..	1	..	40
Buckingham	1	14	33	9	7	3	28
Cambridge	17	9	77	29	25	..	32
Chester	4	14	64	7	30	9	32
Cornwall	..	13	22	..	16	..	19
Cumberland	..	..	..	..	..	..	..
Derby	2	5	11	3	1	..	12
Devon	..	4	4	..	4	..	4
Dorset	..	..	..	..	..	..	..
Durham	..	17	7	6	10	1	7
Essex	..	130	9	..	7	..	132
Gloucester	..	4	27	20	8	..	3
Hants	..	10	..	..	..	..	10
Hereford	..	..	..	..	..	..	..
Hertford	..	5	3	1	..	2	5
Huntingdon	4	32	66	10	12	..	76
Kent	3	60	28	6	17	15	50
Lancaster	6	28	65	24	13	6	50
Leicester	..	3	..	..	..	..	3
Lincoln	4	1	45	7	14	1	24
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	15	152	111	65	32	3	163
Northampton	13	10	143	20	82	8	43
Northumberland	13	35	36	8	24	4	35
Nottingham	..	..	1	1	..	..	..
Oxford	1	4	7	1	4	..	6
Rutland	..	..	..	..	..	..	..
Salop	1	6	1	..	1	..	6
Somerset	..	..	..	..	..	..	..
Stafford	3	8	30	8	13	1	16
Suffolk	1	50	94	11	41	3	89
Surrey	3	84	38	5	17	..	100
Sussex	2	27	67	34	12	15	33
Warwick	4	25	26	3	23	3	22
Westmoreland	..	..	..	..	..	..	..
Wilts	..	..	..	..	..	..	..
Worcester	1	..	1	1	..	..	..
York	43	98	234	25	112	10	185
COUNTIES OF ENGLAND	141	913	1,270	305	537	84	1,257
*METROPOLITAN POLICE DISTRICT	19	554	77	46	26	14	545
ENGLAND TOTAL	160	1,467	1,347	351	563	98	1,802

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 11, 1865.	Remaining from last Week's Report, corrected to Nov. 11, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 11th, 1865.				
			Attacked during Week ending Nov. 11, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	5	38	27	2	35	2	26
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	5	38	27	2	35	2	26
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	1	2	4	..	1	..	5
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	9	17	3	3	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	..	..	..	..	2
Dumbarton	1	11	4	..	6	4	5
Dumfries	..	8	9	1	13	..	3
Edinburgh	7	157	82	33	49	5	152
Elgin, or Moray	..	..	..	..	..	..	..
Fife	5	130	95	2	57	24	142
Forfar	31	554	313	69	171	47	580
Haddington	..	18	13	5	1	2	23
Inverness	..	..	..	..	..	..	..
Kincardine	1	..	1	1	..	..	..
Kinross	1	1	9	..	8	1	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	17	703	153	26	227	64	539
Linlithgow	2	9	25	..	22	1	11
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	7	36	219	21	109	9	116
Renfrew	2	9	17	2	9	1	14
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	5	2	1	..	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	13	124	243	1	160	8	198
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	88	1,778	1,206	165	836	166	1,817

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 4th, 1865.					
		Remaining Week ending Oct. 28.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	2	30	8	1	7	2	28
Berks	..	33	...	..	..	..	33
Buckingham	2	17	9	3	4	5	14
Cambridge	7	5	27	18	5	..	9
Chester	8	..	12	1	3	..	8
Cornwall	..	..	..	..	..	..	..
Cumberland	..	..	..	..	..	..	..
Derby	2	3	15	9	4	..	5
Devon	1	5	2	1	2	..	4
Dorset	..	..	..	..	..	..	...
Durham	5	3	27	8	4	1	17
Essex	4	130	27	1	23	6	127
Gloucester	2	3	13	7	5	..	4
Hants	..	12	10	1	9	2	10
Hereford	..	..	..	..	..	..	..
Hertford	..	13	6	1	2	11	5
Huntingdon	4	12	13	8	4	1	12
Kent	3	58	34	13	16	3	60
Lancaster	11	12	31	1	15	4	23
Leicester	..	3	..	..	..	..	3
Lincoln	1	3	4	2	2	2	1
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	27	145	89	52	29	1	152
Northampton	5	9	7	2	3	1	10
Northumberland	20	41	52	17	33	8	35
Nottingham	..	1	2	1	2	..	..
Oxford	3	2	4	2	..	..	4
Rutland	..	..	..	..	..	..	..
Salop	..	4	9	7	..	..	6
Somerset	..	..	..	..	..	..	..
Stafford	2	4	18	6	5	3	8
Suffolk	4	51	8	4	3	4	48
Surrey	3	103	12	3	13	15	84
Sussex	9	26	18	8	9	..	27
Warwick	..	24	41	15	14	3	33
Westmoreland	..	..	..	..	..	..	..
Wilts	..	..	..	..	..	..	..
Worcester	..	..	..	..	..	..	..
York	40	46	108	31	54	12	57
COUNTIES OF ENGLAND	165	798	606	223	270	84	827
*METROPOLITAN POLICE DISTRICT	16	546	49	24	12	6	553
ENGLAND TOTAL	181	1,344	655	247	282	90	1,380

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865—*continued.*

COUNTIES OR DISTRICTS	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 4th, 1865.					
		Remaining Week ending Oct. 28.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	5	13	52	2	29	3	31
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL ...	5	13	52	2	29	3	31
SCOTLAND.							
Aberdeen	..	..	35	35	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	1	..	..	..	..	1
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed ...	1	5	7	2	1	..	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	..	..	..	..	2
Dumbarton	1	2	24	3	14	3	6
Dumfries	1	3	10	..	5	..	8
Edinburgh	9	163	57	5	45	13	157
Elgin, or Moray	..	..	..	..	..	..	..
Fife	5	58	131	10	46	3	130
Forfar	39	387	525	203	102	68	539
Haddington	3	14	11	..	7	..	18
Inverness	..	..	..	..	..	..	..
Kincardine	..	..	..	..	..	..	..
Kinross	..	1	..	..	..	..	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	39	751	184	36	151	45	703
Linlithgow	2	3	6	..	..	..	9
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	1	..	..	..	1	..
Perth	14	39	46	5	34	10	36
Renfrew	3	12	22	20	5	..	9
Ross and Cromarty ...	..	..	..	..	..	..	..
Roxburgh	..	5	..	..	..	..	5
Selkirk	..	..	..	..	..	..	..
Stirling	22	124	..	..	..	..	124
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	139	1,571	1,058	319	410	143	1,757

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	22	310	196	49	101	14	32
Berks	51	895	481	91	291	59	40
Buckingham	35	658	221	96	82	15	28
Cambridge	39	766	179	89	50	8	32
Chester	25	504	116	23	51	10	32
Cornwall	2	131	46	7	20	..	19
Cumberland	3	41	4	1	1	2	..
Derby	15	281	75	38	17	8	12
Devon	20	152	86	43	34	5	4
Dorset	1	12	6	..	6	..	..
Durham	28	323	137	60	49	21	7
Essex	237	2,158	1,272	260	740	140	132
Gloucester	8	140	53	33	17	..	3
Hants	42	535	211	54	135	12	10
Hereford	..	..	..	..	..	..	..
Hertford	18	250	90	35	33	17	5
Huntingdon	21	327	204	59	68	1	76
Kent	161	1,442	807	290	425	42	50
Lancaster	60	531	240	85	83	22	50
Leicester	7	109	22	12	7	..	3
Lincoln	19	361	93	34	30	5	24
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	217	2,917	1,170	536	438	33	163
Northampton	81	1,500	384	172	146	23	43
Northumberland	126	1,525	492	196	235	26	35
Nottingham	5	59	23	8	14	1	..
Oxford	6	66	27	3	10	8	6
Rutland	..	..	..	..	..	..	..
Salop	7	227	41	16	19	..	6
Somerset	2	11	11	4	7	..	..
Stafford	26	253	121	41	59	5	16
Suffolk	194	1,922	912	402	371	50	89
Surrey	128	2,438	990	376	435	79	100
Sussex	152	3,142	962	451	413	65	33
Warwick	41	895	213	59	113	19	22
Westmoreland	..	..	..	..	..	..	..
Wilts	2	8	3	2	1	..	..
Worcester	4	60	7	3	4	..	..
York	191	2,174	746	136	392	33	185
COUNTIES OF ENGLAND	1,996	27,123	10,641	3,764	4,897	723	1,257
*METROPOLITAN POLICE DISTRICT	631	10,339	5,801	2,796	2,308	152	545
ENGLAND TOTAL	2,627	37,462	16,442	6,560	7,205	875	1,802

REPORT No. 2, FOR WEEK ENDING NOVEMBER 11th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	35	631	258	54	168	10	26
Flint	2	11	10	1	9	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL ...	37	642	268	55	177	10	26
SCOTLAND.							
Aberdeen	16	368	235	168	64	3	..
Argyle	..	..	..	..	..	..	..
Ayr	12	221	26	8	13	..	5
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed ...	4	321	36	9	7	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	44	24	3	11	8	2
Dumbarton	8	223	86	13	56	12	5
Dumfries	3	163	31	4	24	..	3
Edinburgh	119	2,103	1,028	147	643	86	152
Elgin, or Moray	..	..	..	..	..	..	..
Fife	35	1,075	513	64	242	65	142
Forfar	174	5,740	1,923	440	722	181	580
Haddington	25	414	81	11	38	9	23
Inverness	..	..	..	..	..	..	..
Kincardine	3	35	6	5	..	1	..
Kinross	2	130	23	2	19	1	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	167	2,773	2,142	560	920	123	539
Linlithgow	10	231	144	36	83	14	11
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	31	3	2	..	1	..
Perth	58	1,166	411	78	190	27	116
Renfrew	20	212	113	59	36	4	14
Ross and Cromarty ...	..	..	..	..	..	..	..
Roxburgh	5	117	11	3	2	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	70	1,376	515	30	306	11	198
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	734	16,746	7,381	1,642	3,376	546	1,817

REPORT No. 2.—SUMMARY FOR WEEK ENDING NOVEMBER 11th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 11, 1865.	Remaining from last Week's Report, corrected to Nov. 11, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 11th, 1865.				
			Attacked during Week ending Nov. 11, 1865.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	160	1,467	1,347	351	563	98	1,802
Wales	5	38	27	2	35	2	26
Scotland	88	1,778	1,206	165	836	166	1,817
Total...	253	3,283	2,580	518	1,434	266	3,645

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	Remaining Week ending Oct. 28.	2. Diseased Animals reported for the Week ending Nov. 4th, 1865.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	181	1,344	655	247	282	90	1,380
Wales	5	13	52	2	29	3	31
Scotland	139	1,571	1,058	319	410	143	1,757
Total...	325	2,928	1,765	568	721	236	3,168

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. Note.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	2,627	37,462	16,442	6,560	7,205	875	1,802
Wales	37	642	268	55	177	10	26
Scotland	734	16,746	7,381	1,642	3,376	546	1,817
Total.........	3,398	54,850	24,091	8,257	10,758	1,431	3,645

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 18, 1865.	Remaining from last Week's Report, corrected to Nov. 18, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 18th, 1865.				
			Attacked during Week ending Nov. 18, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	37	25	1	18	4	39
Berks	..	40	..	1	..	5	34
Buckingham	2	33	2	..	8	4	23
Cambridge	15	32	69	28	33	2	38
Chester	8	42	101	14	40	2	87
Cornwall	5	19	34	9	27	..	17
Cumberland	..	..	..	..	..	..	..
Derby	6	12	19	14	3	1	13
Devon	..	4	1	1	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	..	7	1	2	4	1	1
Essex	..	111	10	3	7	..	111
Gloucester	..	2	..	..	..	..	2
Hants	..	10	6	..	3	4	9
Hereford	..	..	..	..	..	..	..
Hertford	..	5	..	..	..	..	5
Huntingdon	6	76	14	8	47	..	35
Kent	4	58	23	3	22	7	49
Lancaster	14	63	42	19	27	14	45
Leicester	..	3	..	..	..	..	3
Lincoln	2	24	44	19	15	11	23
Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	8	153	195	93	73	3	179
Northampton	12	43	89	21	81	4	26
Northumberland	5	35	69	20	32	3	49
Nottingham	..	..	..	..	..	..	..
Oxford	1	6	12	..	15	..	3
Rutland	..	..	..	..	..	..	..
Salop	7	6	9	7	2	..	6
Somerset	..	..	..	..	..	..	..
Stafford	1	18	19	6	12	1	18
Suffolk	1	88	7	4	1	..	90
Surrey	2	102	33	16	24	1	94
Sussex	..	37	30	21	14	2	30
Warwick	..	24	4	1	3	3	21
Westmorland	..	..	..	..	..	..	..
Wilts	1	..	4	3	..	..	1
Worcester	..	..	2	..	2	..	..
York	76	252	453	63	286	37	319
COUNTIES OF ENGLAND	176	1,342	1,317	377	799	109	1,374
METROPOLITAN POLICE DISTRICT	15	542	216	33	125	23	577
ENGLAND TOTAL...	191	1,884	1,533	410	924	132	1,951

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865—*continued*.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 18, 1865.	Remaining from last Week's Report, corrected to Nov. 18, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 18th, 1865.				
			Attacked during Week ending Nov. 18, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	5	26	96	1	52	9	60
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	5	26	96	1	52	9	60
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	1	6	38	3	8	..	33
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	20	..	..	..	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	1	2	1	1	..	..	2
Dumbarton	..	11	34	..	3	3	39
Dumfries	1	28	4	..	1	..	31
Edinburgh	7	152	40	12	24	14	142
Elgin, or Moray	..	..	..	..	..	..	..
Fife	8	142	113	6	96	32	121
Forfar	39	581	515	71	331	76	618
Haddington	1	23	1	..	1	..	23
Inverness	..	..	..	..	..	..	..
Kincardine	1	..	..	..	..	..	..
Kinross	..	1	2	..	1	..	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	12	539	142	23	96	13	549
Linlithgow	..	11	16	..	10	..	17
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	19	117	115	6	60	22	144
Renfrew	2	14	4	2	2	1	13
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	3	198	15	..	7	..	206
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	95	1,851	1,040	124	640	161	1,966

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 11th, 1865.					
		Remaining Week ending Nov. 2.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	28	16	1	11	..	32
Berks	..	37	4	..	1	..	40
Buckingham	1	14	33	9	7	3	28
Cambridge	17	9	77	29	25	..	32
Chester	4	14	64	7	30	9	32
Cornwall	..	13	22	..	16	..	19
Cumberland	..	..	..	..	..	..	..
Derby	2	5	11	3	1	..	12
Devon	..	4	4	..	4	..	4
Dorset	..	..	..	..	..	..	..
Durham	..	17	7	6	10	1	7
Essex	..	130	9	..	7	..	132
Gloucester	..	4	27	20	8	..	3
Hants	..	10	..	..	..	..	10
Hereford	..	..	..	..	..	..	..
Hertford	..	5	3	1	..	2	5
Huntingdon	4	32	66	10	12	..	76
Kent	3	60	28	6	17	15	50
Lancaster	6	28	65	24	13	6	50
Leicester	..	3	..	..	..	..	3
Lincoln	4	1	45	7	14	1	24
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	15	152	111	65	32	3	163
Northampton	13	10	143	20	82	8	43
Northumberland	13	35	36	8	24	4	35
Nottingham	..	..	1	1	..	..	..
Oxford	1	4	7	1	4	..	6
Rutland	..	..	..	..	..	..	..
Salop	1	6	1	..	1	..	6
Somerset	..	..	..	..	..	..	..
Stafford	3	8	30	8	13	1	16
Suffolk	1	50	94	11	41	3	89
Surrey	3	84	38	5	17	..	100
Sussex	2	27	67	34	12	15	33
Warwick	4	25	26	3	23	3	22
Westmoreland	..	..	..	..	..	..	..
Wilts	..	..	..	..	..	..	..
Worcester	1	..	1	1	..	..	..
York	43	98	234	25	112	10	185
COUNTIES OF ENGLAND	141	913	1,270	305	537	84	1,257
*METROPOLITAN POLICE DISTRICT	19	554	77	46	26	14	545
ENGLAND TOTAL...	160	1,467	1,347	351	563	98	1,802

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 11th, 1865.					
		Remaining Week ending Nov. 4.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	5	38	27	2	35	2	26
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	5	38	27	2	35	2	26
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	1	2	4	..	1	..	5
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	9	17	3	3	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	..	..	..	..	2
Dumbarton	1	11	4	..	6	4	5
Dumfries	..	8	9	1	13	..	3
Edinburgh	7	157	82	33	49	5	152
Elgin, or Moray	..	..	..	..	..	..	..
Fife	5	130	95	2	57	24	142
Forfar	31	554	313	69	171	47	580
Haddington	..	18	13	5	1	2	23
Inverness	..	..	..	..	..	..	..
Kincardine	1	..	1	1	..	..	..
Kinross	1	1	9	..	8	1	1
Kirkcudbright	..	..	..	..	..	..	..
Lanark	17	703	153	26	227	64	539
Linlithgow	2	9	25	..	22	1	11
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	7	36	219	21	109	9	116
Renfrew	2	9	17	2	9	1	14
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	5	2	1	..	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	13	124	243	1	160	8	198
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	88	1,778	1,206	165	836	166	1,817

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or otherPlaces in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	29	402	258	63	138	18	39
Berks	51	895	481	92	291	64	34
Buckingham	40	723	236	96	96	21	23
Cambridge	54	938	248	117	83	10	38
Chester	38	909	234	38	96	13	87
Cornwall	7	203	80	16	47	..	17
Cumberland	3	90	32	29	1	2	..
Derby	21	309	94	52	20	9	13
Devon	20	152	87	44	34	5	4
Dorset	1	12	6	..	6	..	..
Durham	28	338	138	62	53	22	1
Essex	238	2,189	1,313	264	780	158	111
Gloucester	8	140	53	33	17	1	2
Hants	42	535	217	54	138	16	9
Hereford	..	..	..	..	..	..	..
Hertford	18	250	90	35	33	17	5
Huntingdon	27	444	218	67	115	1	35
Kent	171	1,608	866	300	465	52	49
Lancaster	84	843	366	139	146	36	45
Leicester	7	109	22	12	7	..	3
Lincoln	21	370	137	53	45	16	23
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	236	3,176	1,422	677	529	37	179
Northampton	94	1,690	474	193	228	27	26
Northumberland	133	1,614	561	216	267	29	49
Nottingham	5	59	23	8	14	1	..
Oxford	7	107	39	3	25	8	3
Rutland	..	..	..	..	..	..	..
Salop	15	406	51	24	21	..	6
Somerset	2	11	11	4	7	..	..
Stafford	30	309	149	48	77	6	18
Suffolk	196	1,962	940	418	376	56	90
Surrey	134	2,581	1,037	400	463	80	94
Sussex	152	3,203	1,008	472	439	67	30
Warwick	42	895	219	60	116	22	21
Westmoreland	..	..	..	..	..	..	..
Wilts	3	77	7	5	1	..	1
Worcester	4	63	9	3	6	..	..
York	310	3,359	1,419	236	789	75	319
COUNTIES OF ENGLAND	2,271	30,971	12,545	4,333	5,969	869	1,374
*METROPOLITAN POLICE DISTRICT	651	10,594	6,031	2,837	2,436	181	577
ENGLAND TOTAL...	2,922	41,565	18,576	7,170	8,405	1,050	1,951

REPORT No. 3, FOR WEEK ENDING NOVEMBER 18th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	43	905	354	55	220	19	60
Flint	2	11	10	1	9	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	45	916	364	56	229	19	60
SCOTLAND.							
Aberdeen	16	368	235	168	64	3	..
Argyle	..	..	..	..	..	..	..
Ayr	13	293	66	11	22	..	33
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	4	417	52	15	17	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	3	92	25	4	11	8	2
Dumbarton	8	258	139	13	71	16	39
Dumfries	7	337	64	4	29	..	31
Edinburgh	126	2,168	1,068	159	667	100	142
Elgin, or Moray	..	..	..	..	..	..	..
Fife	46	1,651	626	70	338	97	121
Forfar	216	7,249	2,440	511	1,054	257	618
Haddington	26	443	82	11	39	9	23
Inverness	..	..	..	..	..	..	..
Kincardine	5	35	6	5	..	1	..
Kinross	2	130	25	2	20	1	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	181	2,950	2,284	583	1,016	136	549
Linlithgow	10	231	160	36	93	14	17
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	34	3	2	..	1	..
Perth	81	1,375	529	84	252	49	144
Renfrew	22	229	117	61	38	5	13
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	5	117	11	3	2	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	74	1,442	560	30	313	11	206
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	846	19,819	8,492	1,772	4,046	708	1,966

REPORT No. 3.—SUMMARY OF WEEK ENDING NOVEMBER 18th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 18, 1865.	Remaining from last Week's Report, corrected to Nov. 18, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 18th, 1865.				
			Attacked during Week ending Nov. 18, 1865.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	191	1,884	1,533	410	924	132	1,951
Wales	5	26	96	1	52	9	60
Scotland	95	1,851	1,040	124	640	161	1,966
Total.........	291	3,761	2,669	535	1,616	302	3,977

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 11th, 1865.					
		Remaining Week ending Nov. 4.	Attacked.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	160	1,467	1,347	351	563	98	1,802
Wales	5	38	27	2	35	2	26
Scotland	88	1,778	1,206	165	836	166	1,817
Total.........	253	3,283	2,580	518	1,434	266	3,645

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. Note.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	2,922	41,565	18,576	7,170	8,405	1,050	1,951
Wales	45	916	364	56	229	19	60
Scotland	846	19,819	8,492	1,772	4,046	708	1,966
Total.........	3,813	62,300	27,432	8,998	12,680	1,777	3,977

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 25, 1865.	Remaining from last Week's Report, corrected to Nov. 25, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 25th, 1865.				
			Attacked during Week ending Nov. 25, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	1	39	3	2	3	1	36
Berks	..	33	3	..	1	4	31
Buckingham	..	29	14	1	14	4	24
Cambridge	24	52	152	84	50	3	67
Chester	26	120	158	24	99	8	147
Cornwall	2	25	17	3	19	1	19
Cumberland	3	..	4	4	..	..	..
Derby	3	13	22	24	8	..	3
Devon	..	4	..	..	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	2	..	4	..	..	..	4
Essex	3	127	25	4	16	9	123
Gloucester	3	2	21	19	2	..	2
Hants	..	9	4	..	1	..	12
Hereford	..	50	..	..	..	..	50
Hertford	3	12	33	6	13	..	26
Huntingdon	16	55	76	15	42	..	74
Kent	1	44	22	3	13	5	45
Lancaster	4	47	58	9	16	9	71
Leicester	..	3	..	..	..	..	3
Lincoln	9	53	73	39	32	1	54
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	5	202	65	39	34	5	189
Northampton	24	26	99	24	55	3	43
Northumberland	7	49	55	8	40	2	54
Nottingham	..	..	..	..	..	..	..
Oxford	2	3	15	5	4	1	8
Rutland	..	..	..	..	..	..	..
Salop	1	45	2	1	1	..	45
Somerset	..	..	..	..	..	..	..
Stafford	5	47	29	7	11	..	58
Suffolk	5	115	16	6	9	1	115
Surrey	2	97	16	6	18	6	83
Sussex	5	30	26	13	12	2	29
Warwick	1	21	21	8	16	3	15
Westmoreland	..	..	..	..	..	..	..
Wilts	..	1	1	..	..	1	1
Worcester	1	..	5	4	..	..	1
York	173	464	726	37	405	93	655
COUNTIES OF ENGLAND	331	1,817	1,765	395	934	162	2,091
*METROPOLITAN POLICE DISTRICT...	12	592	78	31	20	29	590
ENGLAND TOTAL...	343	2,409	1,843	426	954	191	2,681

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 25, 1865.	Remaining from last Week's Report, corrected to Nov. 25, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 25th, 1865.				
			Attacked during Week ending Nov. 25, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	6	60	171	1	108	7	115
Flint	7	..	14	..	2	..	12
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	13	60	185	1	110	7	127
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	19	12	..	10	4	17
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	2	24	9	14	4	6	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	7	2	..	..	7
Dumbarton	1	56	20	..	32	5	39
Dumfries	2	31	75	16	31	..	59
Edinburgh	5	142	62	5	21	9	169
Elgin, or Moray	..	..	..	..	..	..	..
Fife	9	121	174	4	91	51	149
Forfar	35	678	525	18	302	111	772
Haddington	3	34	90	..	73	..	51
Inverness	..	..	..	..	..	..	..
Kincardine	..	11	13	2	15	..	7
Kinross	..	2	3	..	3	..	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	9	549	89	19	146	42	431
Linlithgow	2	17	7	..	12	..	12
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	34	181	231	2	145	53	212
Renfrew	3	13	14	3	9	3	12
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	2	..	6	1	2	..	3
Stirling	10	253	245	..	120	25	353
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	117	2,139	1,582	86	1,016	309	2,310

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 18th, 1865.					
		Remaining Week ending Nov. 11.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	37	25	1	18	4	39
Berks	..	40	..	1	..	5	34
Buckingham	2	33	2	..	8	4	23
Cambridge	15	32	69	28	33	2	38
Chester	8	42	101	14	40	2	87
Cornwall	5	19	34	9	27	..	17
Cumberland	..	..	..	..	..	..	..
Derby	6	12	19	14	3	1	13
Devon	..	4	1	1	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	..	7	1	2	4	1	1
Essex	..	111	10	3	7	..	111
Gloucester	..	2	..	..	..	..	2
Hants	..	10	6	..	3	4	9
Hereford	..	..	..	..	..	..	..
Hertford	..	5	..	..	..	..	5
Huntingdon	6	76	14	8	47	..	35
Kent	4	58	23	3	22	7	49
Lancaster	14	63	42	19	27	14	45
Leicester	..	3	..	..	..	..	3
Lincoln	2	24	44	19	15	11	23
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	8	153	195	93	73	3	179
Northampton	12	43	89	21	81	4	26
Northumberland	5	35	69	20	32	3	49
Nottingham	..	..	..	..	..	..	..
Oxford	1	6	12	..	15	..	3
Rutland	..	..	..	..	..	..	..
Salop	7	6	9	7	2	..	6
Somerset	..	..	..	..	..	..	..
Stafford	1	18	19	6	12	1	18
Suffolk	1	88	7	4	1	..	90
Surrey	2	102	33	16	24	1	94
Sussex	..	37	30	21	14	2	30
Warwick	..	24	4	1	3	3	21
Westmoreland	..	..	..	..	..	..	..
Wilts	1	..	4	3	..	..	1
Worcester	..	..	2	..	2	..	..
York	76	252	453	63	286	37	319
COUNTIES OF ENGLAND	176	1,342	1,317	377	799	109	1,374
*METROPOLITAN POLICE DISTRICT	15	542	216	33	125	23	577
ENGLAND TOTAL...	191	1,884	1,533	410	924	132	1,951

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 18th, 1865.					
		Remaining Week ending Nov. 11.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	5	26	96	1	52	9	60
Flint	..	..	..	..	..	..	..
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	5	26	96	1	52	9	60
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	1	6	38	3	8	..	33
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	..	20	..	..	..	..	20
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	1	2	1	1	..	..	2
Dumbarton	..	11	34	..	3	3	39
Dumfries	1	28	4	..	1	..	31
Edinburgh	7	152	40	12	24	14	142
Elgin, or Moray	..	..	..	..	..	..	..
Fife	8	142	113	6	96	32	121
Forfar	39	581	515	71	331	76	618
Haddington	1	23	1	..	1	..	23
Inverness	..	..	..	..	..	..	..
Kincardine	1	..	..	..	..	..	..
Kinross	..	1	2	..	1	..	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	12	539	142	23	96	13	549
Linlithgow	..	11	16	..	10	..	17
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	19	117	115	6	60	22	144
Renfrew	2	14	4	2	2	1	13
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	3	198	15	..	7	..	206
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	95	1,851	1,040	124	640	161	1,966

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	30	405	263	65	143	19	36
Berks	52	895	500	94	299	76	31
Buckingham	42	782	267	102	116	25	24
Cambridge	87	1,494	449	227	142	13	67
Chester	74	2,009	449	65	215	22	147
Cornwall	12	216	106	19	67	1	19
Cumberland	7	165	38	35	1	2	..
Derby	26	322	116	76	28	9	3
Devon	20	152	87	44	34	5	4
Dorset	1	12	6	..	6	..	..
Durham	30	386	144	65	53	22	4
Essex	245	2,520	1,424	275	854	172	123
Gloucester	12	347	75	52	20	1	2
Hants	42	535	221	54	139	16	12
Hereford	9	184	144	..	94	..	50
Hertford	28	386	170	43	84	17	26
Huntingdon	52	882	378	105	193	6	74
Kent	174	1,655	903	318	482	58	45
Lancaster	93	904	429	149	164	45	71
Leicester	7	109	22	12	7	..	3
Lincoln	36	630	280	115	94	17	54
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	276	3,823	1,709	828	648	44	189
Northampton	119	2,130	583	223	287	30	43
Northumberland	144	1,676	619	224	310	31	54
Nottingham	5	59	23	8	14	1	..
Oxford	9	137	54	8	29	9	8
Rutland	..	..	..	..	..	..	..
Salop	28	958	208	95	68	..	45
Somerset	2	11	11	4	7	..	..
Stafford	39	641	234	71	99	6	58
Suffolk	214	2,227	1,160	493	484	68	115
Surrey	139	2,642	1,069	411	489	86	83
Sussex	159	3,426	1,036	485	453	69	29
Warwick	45	991	242	69	133	25	15
Westmoreland	..	..	..	..	..	..	..
Wilts	3	77	8	5	1	1	1
Worcester	7	70	16	7	8	..	1
York	598	6,540	2,495	293	1,366	181	655
COUNTIES OF ENGLAND	2,866	40,398	15,938	5,139	7,631	1,077	2,091
*METROPOLITAN POLICE DISTRICT	676	10,783	6,626	2,948	2,873	215	590
ENGLAND TOTAL	3,542	51,181	22,564	8,087	10,504	1,292	2,681

REPORT No. 4, FOR WEEK ENDING NOVEMBER 25th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	53	1,138	525	56	328	26	115
Flint	9	65	24	1	11	..	12
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	62	1,203	549	57	339	26	127
SCOTLAND.							
Aberdeen	18	368	235	168	64	3	..
Argyle	..	..	..	..	..	..	..
Ayr	14	293	88	13	54	4	17
Banff	..	..	..	..	..	..	..
Berwick-on-Tweed	6	438	90	47	28	6	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	3	166	32	6	11	8	7
Dumbarton	19	430	280	13	195	33	39
Dumfries	10	484	140	20	61	..	59
Edinburgh	135	2,310	1,130	164	688	109	169
Elgin, or Moray	..	..	..	..	..	..	..
Fife	59	1,826	800	74	429	148	149
Forfar	305	8,983	3,298	546	1,571	409	772
Haddington	32	649	188	11	117	9	51
Inverness	..	..	..	..	..	..	..
Kincardine	8	85	42	14	15	6	7
Kinross	2	130	28	2	23	1	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	190	3,066	2,373	602	1,162	178	431
Linlithgow	12	298	167	36	105	14	12
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	34	3	2	..	1	..
Perth	134	1,943	841	89	434	106	212
Renfrew	25	270	131	64	47	8	12
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	5	117	11	3	2	..	6
Selkirk	2	41	6	1	2	..	3
Stirling	109	2,075	987	42	533	59	353
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	1,089	24,006	10,870	1,917	5,541	1,102	2,310

REPORT No. 4.—SUMMARY FOR WEEK ENDING NOVEMBER 25th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Nov. 25, 1865.	Remaining from last Week's Report, corrected to Nov. 25, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Nov. 25th, 1865.				
			Attacked during Week ending Nov. 25, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)	343	2,409	1,843	426	954	191	2,681
WALES	13	60	185	1	110	7	127
SCOTLAND	117	2,139	1,582	86	1,016	309	2,310
TOTAL	473	4,608	3,610	513	2,080	507	5,118

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 18th, 1865.					
		Remaining Week ending Nov. 11.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)	191	1,884	1,533	410	924	132	1,951
WALES	5	26	96	1	52	9	60
SCOTLAND	95	1,851	1,040	124	640	161	1,966
TOTAL	291	3,761	2,669	535	1,616	302	3,977

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)	3,542	51,181	22,564	8,087	10,504	1,292	2,681
WALES	62	1,203	549	57	339	26	127
SCOTLAND	1,089	24,006	10,870	1,917	5,541	1,102	2,310
TOTAL	4,693	76,390	33,983	10,061	16,384	2,420	5,118

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 2, 1865.	Remaining from last Week's Report, corrected to Dec. 2, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 2nd, 1865.				
			Attacked during Week ending Dec. 2, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	4	49	16	1	8	2	54
Berks	..	34	2	..	2	4	30
Buckingham	3	24	24	5	14	..	29
Cambridge	31	159	177	46	90	3	197
Chester	31	188	374	9	235	18	300
Cornwall	4	37	23	1	22	..	37
Cumberland	3	..	74	52	5	..	17
Derby	7	3	14	6	6	..	5
Devon	..	4	..	..	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	1	4	1	..	1	4	..
Essex	1	128	8	1	1	..	134
Gloucester	..	2	..	..	..	..	2
Hants	..	12	20	5	15	..	12
Hereford	1	59	35	36	12	14	32
Hertford	..	26	14	..	14	4	22
Huntingdon	13	81	145	7	76	3	140
Kent	2	48	9	..	4	5	48
Lancaster	10	92	49	3	28	13	97
Leicester	..	3	..	..	..	..	3
Lincoln	13	61	64	9	53	8	55
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	20	217	162	59	118	7	195
Northampton	23	46	101	26	60	4	57
Northumberland	4	54	44	1	45	8	44
Nottingham	..	7	..	..	..	..	7
Oxford	8	8	33	18	9	..	14
Rutland	..	..	..	..	..	..	..
Salop	1	49	2	..	1	1	49
Somerset	..	..	..	..	..	..	..
Stafford	5	63	51	6	29	10	69
Suffolk	4	120	10	3	8	10	109
Surrey	4	83	38	3	22	1	95
Sussex	3	29	35	16	8	3	37
Warwick	2	15	8	..	4	..	19
Westmoreland	..	..	..	..	..	..	..
Wilts	..	6	..	..	..	1	5
Worcester	2	1	6	1	5	1	..
York	203	752	938	43	594	144	909
COUNTIES OF ENGLAND	403	2,464	2,477	357	1,489	268	2,827
*METROPOLITAN POLICE DISTRICT	15	589	44	15	30	4	584
ENGLAND TOTAL...	418	3,053	2,521	372	1,519	272	3,411

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 2, 1865.	Remaining from last Week's Report, corrected to Dec. 2, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 2nd, 1865.				
			Attacked during Week ending Dec. 2, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	...
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	12	135	116	2	126	18	105
Flint	..	2	..	..	..	..	2
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	12	137	116	2	126	18	107
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	..	17	8	..	15	5	5
Banff	..	..	..	..	..	..	..
Berwick	3	10	19	4	3	..	22
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	7	18	..	8	1	16
Dumbarton	4	43	29	..	13	6	53
Dumfries	3	59	82	4	92	2	43
Edinburgh	4	169	70	3	56	7	173
Elgin, or Moray	..	..	..	..	..	..	..
Fife	10	163	97	1	74	8	177
Forfar	35	775	473	27	322	40	859
Haddington	6	50	39	2	10	..	77
Inverness	..	..	..	..	..	..	..
Kincardine	1	8	29	10	8	..	19
Kinross	..	2	1	..	..	..	3
Kirkcudbright	..	..	..	..	..	..	..
Lanark	9	438	148	10	84	7	485
Linlithgow	1	12	34	..	18	..	28
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	14	212	117	1	113	26	189
Renfrew	1	34	19	1	6	2	44
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	6	8	1	1	2	10
*Stirling	..	354	..	..	..	..	354
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	93	2,366	1,191	64	823	106	2,564

* No returns have been received from the County of Stirling for Week ending Dec. 2nd up to the time of making up this Report.

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 25th, 1865.					
		Remaining Week ending Nov. 18.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	1	39	3	2	3	1	36
Berks	..	33	3	..	1	4	31
Buckingham	..	29	14	1	14	4	24
Cambridge	24	52	152	84	50	3	67
Chester	26	120	158	24	99	8	147
Cornwall	2	25	17	3	19	1	19
Cumberland	3	..	4	4	..	..	..
Derby	3	13	22	24	8	..	3
Devon	..	4	..	..	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	2	..	4	..	..	..	4
Essex	3	127	25	4	16	9	123
Gloucester	3	2	21	19	2	..	2
Hants	..	9	4	..	1	..	12
Hereford	..	50	..	..	..	..	50
Hertford	3	12	33	6	13	..	26
Huntingdon	16	55	76	15	42	..	74
Kent	1	44	22	3	13	5	45
Lancaster	4	47	58	9	16	9	71
Leicester	..	3	..	..	..	..	3
Lincoln	9	53	73	39	32	1	54
*Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
Norfolk	5	202	65	39	34	5	189
Northampton	24	26	99	24	55	3	43
Northumberland	7	49	55	8	40	2	54
Nottingham	..	..	..	..	..	..	..
Oxford	2	3	15	5	4	1	8
Rutland	..	..	..	..	..	..	..
Salop	1	45	2	1	1	..	45
Somerset	..	..	..	..	..	..	..
Stafford	5	47	29	7	11	..	58
Suffolk	5	115	16	6	9	1	115
Surrey	2	97	16	6	18	6	83
Sussex	5	30	26	13	12	2	29
Warwick	1	21	21	8	16	3	15
Westmoreland	..	..	..	..	..	..	..
Wilts	..	1	1	..	..	1	1
Worcester	1	..	5	4	..	..	1
York	173	464	726	37	405	93	655
COUNTIES OF ENGLAND	331	1,817	1,765	395	934	162	2,091
*METROPOLITAN POLICE DISTRICT	12	592	78	31	20	29	590
ENGLAND TOTAL...	343	2,409	1,843	426	954	191	2,681

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 25th, 1865.					
		Remaining Week ending Nov. 18.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	6	60	171	1	108	7	115
Flint	7	..	14	..	2	..	12
Glamorgan	..	..	...	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	13	60	185	1	110	7	127
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	19	12	..	10	4	17
Banff	..	..	..	..	..	..	..
Berwick	2	24	9	14	4	6	9
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	..	2	7	2	..	..	7
Dumbarton	1	56	20	..	32	5	39
Dumfries	2	31	75	16	31	..	59
Edinburgh	5	142	62	5	21	9	169
Elgin, or Moray	..	..	..	..	..	..	..
Fife	9	121	174	4	91	51	149
Forfar	35	678	525	18	302	111	772
Haddington	3	34	90	..	73	..	51
Inverness	..	..	..	..	..	..	..
Kincardine	..	11	13	2	15	..	7
Kinross	..	2	3	..	3	..	2
Kirkcudbright	..	..	..	..	..	..	..
Lanark	9	549	89	19	146	42	431
Linlithgow	2	17	7	..	12	..	12
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	34	181	231	2	145	53	212
Renfrew	3	13	14	3	9	3	12
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	2	..	6	1	2	..	3
*Stirling	10	253	245	..	120	25	353
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	117	2,139	1,582	86	1,016	309	2,310

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* No returns have been received from the County of Stirling for Week ending Dec. 2nd up to the time of making up this Report.

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	37	518	313	71	163	25	54
Berks	53	913	505	94	301	80	30
Buckingham	45	915	291	107	130	25	29
Cambridge	159	2,605	1,041	328	500	16	197
Chester	128	3,187	882	77	465	40	300
Cornwall	20	360	148	21	89	1	37
Cumberland	10	420	112	87	6	2	17
Derby	33	371	130	82	34	9	5
Devon	20	152	87	44	34	5	4
Dorset	1	12	6	..	6	..	..
Durham	32	425	147	67	54	26	..
Essex	260	2,718	1,542	301	935	172	134
Gloucester	12	347	75	52	20	1	2
Hants	44	554	241	59	154	16	12
Hereford	11	240	191	36	109	14	32
Hertford	30	389	184	43	98	21	22
Huntingdon	80	1,325	543	116	278	9	140
ent	184	1,699	925	319	495	63	48
Lancaster	126	1,265	545	162	224	62	97
eicester	7	109	22	12	7	..	3
incoln	55	993	358	124	154	25	55
Middlesex	..	..	..	..	..	..	..
Monmouth	..	..	..	..	..	..	..
orfolk	328	4,707	2,089	990	849	55	195
orthampton	142	2,543	689	250	348	34	57
orthumberland	151	1,801	666	226	357	39	44
ottingham	6	74	32	9	15	1	7
Oxford	17	451	88	26	39	9	14
Rutland	..	..	..	..	..	..	..
alop	30	977	219	95	74	1	49
omerset	2	11	11	4	7	..	..
tafford	49	859	320	82	152	17	69
uffolk	221	2,372	1,176	497	492	78	109
urrey	146	2,727	1,108	414	512	87	95
ussex	162	3,449	1,071	501	461	72	37
arwick	47	1,005	250	69	137	25	19
estmoreland	..	..	..	..	..	..	..
ilts	3	174	28	7	14	2	5
orcester	9	132	30	8	21	1	..
ork	858	9,825	3,698	349	2,109	331	909
UNTIES OF ENGLAND	3,518	50,624	19,763	5,729	9,843	1,364	2,827
METROPOLITAN POLICE DISTRICT	703	10,954	6,708	2,978	2,924	222	584
ENGLAND TOTAL	4,221	61,578	26,471	8,707	12,767	1,586	3,411

REPORT No. 5, FOR WEEK ENDING DECEMBER 2nd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	71	1,500	687	58	480	44	105
Flint	25	343	132	23	86	21	2
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	96	1,843	819	81	566	65	107
SCOTLAND.							
Aberdeen	22	427	247	177	66	3	1
Argyle	..	..	..	..	..	..	..
Ayr	15	297	96	13	69	9	5
Banff	..	..	..	..	..	..	..
Berwick	10	486	116	52	34	8	22
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	5	229	50	6	19	9	16
Dumbarton	27	501	313	13	208	39	53
Dumfries	13	540	222	24	153	2	43
Edinburgh	141	2,416	1,200	167	744	116	173
Elgin, or Moray	..	..	..	..	..	..	..
Fife	73	2,248	972	76	553	166	177
Forfar	359	9,926	3,842	578	1,937	468	859
Haddington	41	796	231	14	129	11	77
Inverness	..	..	..	..	..	..	..
Kincardine	10	178	73	24	24	6	19
Kinross	2	130	29	2	23	1	3
Kirkcudbright	..	..	..	..	..	..	..
Lanark	200	3,214	2,549	612	1,267	185	485
Linlithgow	13	317	201	36	123	14	28
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	34	3	2	..	1	..
Perth	148	2,104	958	90	547	132	189
Renfrew	29	374	179	65	60	10	44
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	5	117	11	3	2	..	6
Selkirk	2	82	20	3	5	2	10
*Stirling	117	2,170	1,112	42	640	76	354
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	1,233	26,586	12,424	1,999	6,603	1,258	2,564

* No Returns have been received from the County of Stirling for Week ending Dec. 2nd up to the time of making up this Report.

REPORT No. 5.—SUMMARY FOR WEEK ENDING DECEMBER 2nd, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 2, 1865.	Remaining from last Week's Report, corrected to Dec. 2, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 2nd, 1865.				
			Attacked during Week ending Dec. 2, 1865.	Killed.	Died.	Recovered.	Remaining.
NGLAND (Total)	418	3,053	2,521	372	1,519	272	3,411
VALES	12	137	116	2	126	18	107
COTLAND	93	2,366	1,191	64	823	106	2,564
TOTAL	523	5,556	3,828	438	2,468	396	6,082

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Nov. 25th, 1865.					
		Remaining Week ending Nov. 18,	Attacked.	Killed.	Died.	Recovered.	Remaining.
NGLAND (Total)	343	2,409	1,843	426	954	191	2,681
ALES	13	60	185	1	110	7	127
OTLAND	117	2,139	1,582	86	1,016	309	2,310
TOTAL	473	4,608	3,610	513	2,080	507	5,118

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
			Attacked.	Killed.	Died.	Recovered.	Remaining.
GLAND (Total)......	4,221	61,578	26,471	8,707	12,767	1,586	3,411
ALES	96	1,843	819	81	566	65	107
TLAND	1,233	26,586	12,424	1,999	6,603	1,258	2,564
TOTAL	5,550	90,007	39,714	10,787	19,936	2,909	6,082

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 9, 1865.	Remaining from last Week's Report, corrected to Dec. 9, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 9th, 1865.				
			Attacked during Week ending Dec. 9, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	1	54	8	..	4	..	58
Berks	..	30	3	..	2	2	29
Buckingham	3	29	27	16	11	5	24
Cambridge	24	235	314	84	257	6	202
Chester	62	316	596	21	314	53	524
Cornwall	5	38	40	6	31	..	41
Cumberland	4	17	82	23	15	4	57
Derby	..	5	13	3	9	1	5
Devon	..	11	2	..	6	1	6
Dorset	..	..	..	..	..	..	..
Durham	2	..	17	5	3	2	7
Essex	4	111	29	3	25	10	102
Gloucester	..	2	..	..	..	..	2
Hants	..	12	3	..	2	1	12
Hereford	1	35	29	4	16	6	38
Hertford	1	23	7	..	12	..	18
Huntingdon	15	140	131	6	135	1	129
Kent	5	51	10	3	7	4	47
Lancaster	14	97	77	7	57	20	90
Leicester	1	3	1	1	..	..	3
Lincoln	13	77	134	37	107	13	54
Monmouth	..	..	..	..	..	..	..
Norfolk	16	216	182	73	81	5	239
Northampton	13	57	108	31	84	13	37
Northumberland	5	44	39	3	24	8	48
Nottingham	2	7	23	6	6	..	18
Oxford	2	14	32	15	15	2	14
Rutland	..	..	..	..	..	..	..
Salop	1	49	1	..	3	..	47
Somerset	1	1	1	..	1	..	1
Stafford	1	57	31	3	26	6	53
Suffolk	8	102	34	4	15	4	113
Surrey	2	96	21	11	8	1	97
Sussex	5	37	18	3	20	2	30
Warwick	3	23	22	1	12	4	28
Westmoreland	..	..	..	..	..	..	..
Wilts	2	5	28	5	10	1	17
Worcester	..	..	1	1	..	..	..
York	129	1,155	1,037	52	649	145	1,346
COUNTIES OF ENGLAND	345	3,149	3,101	427	1,967	320	3,536
*METROPOLITAN POLICE DISTRICT	14	608	129	44	75	43	575
ENGLAND TOTAL...	359	3,757	3,230	471	2,042	363	4,111

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* The Metropolitan Police District includes the whole of the County of Middlesex and parts of the Counties of Essex, Herts, Kent, and Surrey.

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 9, 1865.	Remaining from last Week's Report, corrected to Dec. 9, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 9th, 1865.				
			Attacked during Week ending Dec. 9, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	12	146	171	..	143	33	141
Flint	12	..	74	..	25	1	48
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	24	146	245	..	168	34	189
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	2	5	11	2	6	..	8
Banff	..	..	..	..	..	..	..
Berwick	3	23	17	5	11	..	24
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	16	28	..	14	8	22
Dumbarton	..	59	31	..	34	7	49
Dumfries	8	44	107	11	43	4	93
Edinburgh	6	174	69	4	57	20	162
Elgin, or Moray	..	..	..	..	..	..	..
Fife	13	188	99	..	58	23	206
Forfar	60	906	634	37	347	75	1,081
Haddington	2	77	144	..	98	4	119
Inverness	..	..	..	..	..	..	..
Kincardine	..	19	..	..	..	..	19
Kinross	1	3	1	..	1	..	3
Kirkcudbright	..	8	..	..	..	..	8
Lanark	6	485	201	59	91	78	458
Linlithgow	1	34	8	..	12	7	23
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	14	304	254	1	160	37	360
Renfrew	2	44	22	3	32	13	18
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	10	..	..	..	..	10
Stirling	4	409	255	..	240	33	391
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL...	124	2,815	1,881	122	1,204	309	3,061

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 2nd, 1865.					
		Remaining Week ending Nov. 25.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	4	49	16	1	8	2	54
Berks	..	34	2	..	2	4	30
Buckingham	3	24	24	5	14	..	29
Cambridge	31	159	177	46	90	3	197
Chester	31	188	374	9	235	18	300
Cornwall	4	37	23	1	22	..	37
Cumberland	3	..	74	52	5	..	17
Derby	7	3	14	6	6	..	5
Devon	..	4	..	..	..	..	4
Dorset	..	..	..	..	..	..	..
Durham	1	4	1	..	1	4	..
Essex	1	128	8	1	1	..	134
Gloucester	..	2	..	..	..	..	2
Hants	..	12	20	5	15	..	12
Hereford	1	59	35	36	12	14	32
Hertford	..	26	14	..	14	4	22
Huntingdon	13	81	145	7	76	3	140
Kent	2	48	9	..	4	5	48
Lancaster	10	92	49	3	28	13	97
Leicester	..	3	..	..	..	..	3
Lincoln	13	61	64	9	53	8	55
Monmouth	..	..	..	..	..	..	..
Norfolk	20	217	162	59	118	7	195
Northampton	23	46	101	26	60	4	57
Northumberland	4	54	44	1	45	8	44
Nottingham	..	7	..	..	..	..	7
Oxford	8	8	33	18	9	..	14
Rutland	..	..	..	..	..	..	..
Salop	1	49	2	..	1	1	49
Somerset	..	..	..	..	..	..	..
Stafford	5	63	51	6	29	10	69
Suffolk	4	120	10	3	8	10	109
Surrey	4	83	38	3	22	1	95
Sussex	3	29	35	16	8	3	37
Warwick	2	15	8	..	4	..	19
Westmoreland	..	..	..	..	..	..	..
Wilts	..	6	..	..	..	1	5
Worcester	2	1	6	1	5	1	..
York	203	752	938	43	594	144	909
COUNTIES OF ENGLAND	403	2,464	2,477	357	1,489	268	2,827
METROPOLITAN POLICE DISTRICT	15	589	44	15	30	4	584
ENGLAND TOTAL	418	3,053	2,521	372	1,519	272	3,411

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 2nd, 1865.					
		Remaining Week ending Nov. 23.	Attacked.	Killed.	Died.	Recovered.	Remaining,
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	12	135	116	2	126	18	105
Flint	..	2	..	..	..	..	2
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL...	12	137	116	2	126	18	107
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	..	17	8	..	15	5	5
Banff	..	..	..	..	..	..	..
Berwick	3	10	19	4	3	..	22
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	7	18	..	8	1	16
Dumbarton	4	43	29	..	13	6	53
Dumfries	3	59	82	4	92	2	43
Edinburgh	4	169	70	3	56	7	173
Elgin, or Moray	..	..	..	..	..	..	..
Fife	10	163	97	1	74	8	177
Forfar	35	775	473	27	322	40	859
Haddington	6	50	39	2	10	..	77
Inverness	..	..	..	..	..	..	..
Kincardine	1	8	29	10	8	..	19
Kinross	..	2	1	..	..	..	3
Kirkcudbright	..	..	..	..	..	..	..
Lanark	9	438	148	10	84	7	485
Linlithgow	1	12	34	..	18	..	28
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	14	212	117	1	113	26	189
Renfrew	1	34	19	1	6	2	44
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	6	8	1	1	2	10
Stirling	..	354	..	..	..	..	354
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	93	2,366	1,191	64	823	106	2,564

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.								
Bedford	39	525	58	322	71	168	25	58
Berks	55	929	12	509	94	304	82	29
Buckingham	53	1,189	73	330	135	141	30	24
Cambridge	193	3,395	378	1,422	431	766	23	202
Chester	212	5,366	194	1,510	101	792	93	524
Cornwall	27	473	32	192	28	122	1	41
Cumberland	14	502	73	194	110	21	6	57
Derby	33	371	21	143	85	43	10	5
Devon	22	186	6	97	44	41	6	6
Dorset	1	12	6	6	..	6	..	..
Durham	34	429	89	164	72	57	28	7
Essex	309	2,902	290	1,657	314	1,050	191	102
Gloucester	12	347	23	75	52	20	1	2
Hants	44	554	53	244	59	156	17	12
Hereford	15	273	..	239	40	141	20	38
Hertford	31	400	19	196	45	112	21	18
Huntingdon	98	1,498	110	681	122	420	10	129
Kent	191	1,769	280	944	322	507	68	47
Lancaster	141	1,407	248	627	173	282	82	90
Leicester	8	111	18	23	13	7	..	3
Lincoln	78	1,409	110	546	169	284	39	54
Monmouth	..	..	..	..	..	..	..	..
Norfolk	357	5,117	285	2,340	1,072	969	60	239
Northampton	161	2,927	470	808	291	433	47	37
Northumberland	157	1,884	357	706	229	382	47	48
Nottingham	9	147	16	55	15	21	1	18
Oxford	19	561	33	120	41	54	11	14
Rutland	..	..	..	..	..	..	..	..
Salop	31	1,010	87	221	95	78	1	47
Somerset	5	46	9	26	14	11	..	1
Stafford	51	882	62	364	85	190	36	53
Suffolk	232	2,412	287	1,289	508	580	88	113
Surrey	149	2,772	256	1,133	425	523	88	97
Sussex	167	3,659	306	1,089	504	481	74	30
Warwick	54	1,181	52	312	75	172	37	28
Westmoreland	..	..	..	..	..	..	..	..
Wilts	8	203	9	56	12	24	3	17
Worcester	9	132	..	31	9	21	1	..
York	1,109	12.244	1,137	5,178	414	2,931	487	1,346
COUNTIES OF ENGLAND	4,128	59,224	5,459	23,849	6,269	12,310	1,734	3,536
METROPOLITAN POLICE DISTRICT	748	11,486	2,125	6,962	3,046	3,073	268	575
ENGLAND TOTAL...	4,876	70,710	7,584	30,811	9,315	15,383	2,002	4,111

REPORT No. 6, FOR WEEK ENDING DECEMBER 9th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.								
Anglesey	..	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..	..
Denbigh	86	2,005	..	902	59	625	77	141
Flint	38	517	79	209	23	116	22	48
Glamorgan	..	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..	..
WALES TOTAL...	124	2,522	79	1,111	82	741	99	189
SCOTLAND.								
Aberdeen	22	427	42	247	177	66	3	1
Argyle	..	..	..	..	..	..	..	..
Ayr	17	310	80	110	18	75	9	8
Banff	..	..	..	..	..	..	..	..
Berwick	15	636	12	134	57	45	8	24
Bute	..	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..	..
Clackmannan	7	258	94	78	6	33	17	22
Dumbarton	30	544	42	367	13	259	46	49
Dumfries	23	611	24	332	36	197	6	93
Edinburgh	148	2,616	646	1,272	171	803	136	162
Elgin, or Moray	..	..	..	..	..	..	..	..
Fife	95	2,855	277	1,113	76	630	201	206
Forfar	464	12,588	1,973	4,755	642	2,427	605	1,081
Haddington	45	1,044	126	530	15	368	28	119
Inverness	..	..	..	..	..	..	..	..
Kincardine	10	178	11	73	24	24	6	19
Kinross	3	132	..	30	2	24	1	3
Kirkcudbright	1	39	1	9	1	..	..	8
Lanark	206	3,361	465	2,750	671	1,358	263	458
Linlithgow	15	372	88	216	36	136	21	23
Nairn	..	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..	..
Peebles	1	34	..	3	2	..	1	..
Perth	183	3,018	491	1,424	92	803	169	360
Renfrew	31	391	116	201	68	92	23	18
Ross and Cromarty	..	..	..	..	..	..	..	..
Roxburgh	5	117	8	11	3	2	..	6
Selkirk	2	82	4	20	3	5	2	10
Stirling	152	2,771	129	1,602	44	1,042	125	391
Sutherland	..	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..	..
SCOTLAND TOTAL...	1,475	32,381	4,629	15,277	2,157	8,389	1,670	3,061

REPORT No. 6.—SUMMARY FOR WEEK ENDING DECEMBER 9th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 9, 1865.	Remaining from last Week's Report, corrected to Dec. 9, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 9th, 1865.				
			Attacked during Week ending Dec. 9, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	359	3,757	3,230	471	2,042	363	4,111
WALES	24	146	245	..	168	34	189
SCOTLAND	124	2,815	1,881	122	1,204	309	3,061
TOTAL.........	507	6,718	5,356	593	3,414	706	7,361

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week	2. Diseased Animals reported for the Week ending Dec. 2nd, 1865.					
		Remaining Week ending Nov. 25.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	418	3,053	2,521	372	1,519	272	3,411
WALES	12	137	116	2	126	18	107
SCOTLAND	93	2,366	1,191	64	823	106	2,564
TOTAL.........	523	5,556	3,828	438	2,468	396	6,082

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	4,876	70,710	7,584	30,811	9,315	15,383	2,002	4,111
WALES	124	2,522	79	1,111	82	741	99	189
SCOTLAND	1,475	32,384	4,629	15,277	2,157	8,389	1,670	3,061
TOTAL.........	6,475	105,616	12,292	47,199	11,554	24,513	3,771	7,361

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 16, 1865.	Remaining from last Week's Report, corrected to Dec. 16. 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 16th, 1865.				
			Attacked during Week ending Dec. 16, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	60	11	1	10	4	56
Berks	1	29	3	..	2	..	30
Buckingham	4	31	21	7	10	4	31
Cambridge	48	244	445	60	301	26	302
Chester	90	547	876	27	534	46	816
Cornwall	6	41	77	17	32	..	69
Cumberland	8	63	43	28	24	5	49
Derby	2	5	10	4	4	..	7
Devon	..	7	2	..	..	1	8
Dorset	..	..	..	..	..	..	..
Durham	1	20	12	..	2	..	30
Essex	3	114	45	17	8	1	133
Gloucester	..	2	..	..	..	..	2
Hants	1	12	1	..	1	..	12
Hereford	3	38	42	..	41	9	30
Hertford	3	19	6	..	9	1	15
Huntingdon	16	133	109	5	118	5	114
Kent	4	57	31	..	10	7	71
Lancaster	16	104	69	13	60	4	96
Leicester	..	3	5	..	1	..	7
Lincoln	52	84	299	21	181	16	165
Monmouth	..	..	..	..	..	..	..
Norfolk	8	251	306	101	152	6	298
Northampton	13	37	93	17	72	8	33
Northumberland	..	48	54	2	41	10	49
Nottingham	1	18	4	..	1	..	21
Oxford	11	14	60	20	14	4	36
Rutland	..	..	..	..	..	..	..
Salop	7	47	18	1	5	3	56
Somerset	..	1	3	3	..	..	1
Stafford	1	64	25	11	13	3	62
Suffolk	12	76	39	6	24	2	83
Surrey	..	104	27	10	17	2	102
Sussex	4	36	8	2	13	1	28
Warwick	1	35	51	..	30	4	52
Westmoreland	..	..	..	..	..	..	..
Wilts	3	17	19	6	11	4	15
Worcester	1	..	7	1	1	2	3
York	184	1,571	1,202	65	874	218	1,616
COUNTIES OF ENGLAND	504	3,932	4,023	445	2,616	396	4,498
*METROPOLITAN POLICE DISTRICT	14	576	43	7	45	..	567
ENGLAND TOTAL	518	4,508	4,066	452	2,661	396	5,065

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* The Metropolitan Police District includes the whole of the County of Middlesex and parts of the Counties of Essex, Herts, Kent, and Surrey.

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 16, 1865.	Remaining from last Week's Report, corrected to Dec. 16, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 16th, 1865.				
			Attacked during Week ending Dec. 16, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	11	164	262	..	227	37	162
Flint	1	60	25	..	7	..	78
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	12	224	287	..	234	37	240
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	..	8	19	2	6	1	18
Banff	..	..	..	..	..	..	..
Berwick	2	24	28	..	9	9	34
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	4	22	49	..	32	22	17
Dumbarton	3	74	22	1	15	2	78
Dumfries	2	93	14	..	20	10	77
Edinburgh	1	163	36	2	20	9	168
Elgin, or Moray	..	..	..	..	..	..	..
Fife	9	228	227	1	108	20	326
Forfar	32	1,079	517	41	358	148	1,049
Haddington	2	119	21	6	31	3	100
Inverness	..	..	..	..	..	..	..
Kincardine	1	44	64	19	27	5	57
Kinross	1	3	9	..	4	1	7
Kirkcudbright	..	2	..	..	..	..	2
Lanark	7	503	168	75	83	22	491
Linlithgow	4	23	18	2	12	10	17
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	..	3	3	..	..	..
Perth	30	360	236	..	161	57	378
Renfrew	4	18	44	..	16	5	41
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	9	..	..	3	..	6
Selkirk	..	10	..	..	..	..	10
Stirling	9	425	226	1	170	42	438
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	112	3,208	1,701	153	1,075	366	3,315

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 9th, 1865.					
		Remaining Week ending Dec. 2.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	1	54	8	..	4	..	58
Berks	..	30	3	..	2	2	29
Buckingham	3	29	27	16	11	5	24
Cambridge	24	235	314	84	257	6	202
Chester	62	316	596	21	314	53	524
Cornwall	5	38	40	6	31	..	41
Cumberland	4	17	82	23	15	4	57
Derby	..	5	13	3	9	1	5
Devon	..	11	2	..	6	1	6
Dorset	..	..	..	..	..	..	..
Durham	2	..	17	5	3	2	7
Essex	4	111	29	3	25	10	102
Gloucester	..	2	..	..	..	..	2
Hants	..	12	3	..	2	1	12
Hereford	1	35	29	4	16	6	38
Hertford	1	23	7	..	12	..	18
Huntingdon	15	140	131	6	135	1	129
Kent	5	51	10	3	7	4	47
Lancaster	14	97	77	7	57	20	90
Leicester	1	3	1	1	..	..	3
Lincoln	13	77	134	37	107	13	54
Monmouth	..	..	..	..	..	..	..
Norfolk	16	216	182	73	81	5	239
Northampton	13	57	108	31	84	13	37
Northumberland	5	44	39	3	24	8	48
Nottingham	2	7	23	6	6	..	18
Oxford	2	14	32	15	15	2	14
Rutland	..	..	..	..	..	..	..
Salop	1	49	1	..	3	..	47
Somerset	1	1	1	..	1	..	1
Stafford	1	57	31	3	26	6	53
Suffolk	8	102	34	4	15	4	113
Surrey	2	96	21	11	8	1	97
Sussex	5	37	18	3	20	2	30
Warwick	3	23	22	1	12	4	28
Westmoreland	..	..	..	..	..	..	..
Wilts	2	5	28	5	10	1	17
Worcester	..	..	1	1	..	..	..
York	129	1,155	1,037	52	649	145	1,346
COUNTIES OF ENGLAND	345	3,149	3,101	427	1,967	320	3,536
METROPOLITAN POLICE DISTRICT	14	608	129	44	75	43	575
ENGLAND TOTAL	359	3,757	3,230	471	2,042	363	4,111

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 9th, 1865.					
		Remaining Week ending Dec. 2.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	12	146	171	..	143	33	141
Flint	12	..	74	..	25	1	48
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	24	146	245	..	168	34	189
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	2	5	11	2	6	..	8
Banff	..	..	..	..	..	..	..
Berwick	3	23	17	5	11	..	24
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	16	28	..	14	8	22
Dumbarton	..	59	31	..	34	7	49
Dumfries	8	44	107	11	43	4	93
Edinburgh	6	174	69	4	57	20	162
Elgin, or Moray	..	..	..	..	..	..	..
Fife	13	188	99	..	58	23	206
Forfar	60	906	634	37	347	75	1,081
Haddington	2	77	144	..	98	4	119
Inverness	..	..	..	..	..	..	..
Kincardine	..	19	..	..	..	..	19
Kinross	1	3	1	..	1	..	3
Kirkcudbright	..	8	..	..	..	..	8
Lanark	6	485	201	59	91	78	458
Linlithgow	1	34	8	..	12	7	23
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	14	304	254	1	160	37	360
Renfrew	2	44	22	3	32	13	18
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	10	..	..	..	..	10
Stirling	4	409	255	..	240	33	391
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	124	2,815	1,881	122	1,204	309	3,061

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.								
Bedford	41	564	59	335	72	178	29	56
Berks	56	937	12	512	94	306	82	30
Buckingham	59	1,314	73	360	143	152	34	31
Cambridge	263	4,469	519	1,965	501	1,113	49	302
Chester	325	8,282	278	2,434	131	1,348	139	816
Cornwall	33	585	32	269	45	154	1	69
Cumberland	26	714	102	245	139	46	11	49
Derby	35	377	22	153	89	47	10	7
Devon	23	224	6	103	46	42	7	8
Dorset	1	12	6	6	..	6	..	..
Durham	35	491	89	192	73	61	28	30
Essex	320	3,063	338	1,773	352	1,094	194	133
Gloucester	12	347	23	75	52	20	1	2
Hants	45	576	58	245	59	157	17	12
Hereford	19	345	..	281	40	182	29	30
Hertford	35	444	19	204	45	122	22	15
Huntingdon	116	1,709	119	797	127	541	15	114
Kent	239	2,717	280	1,365	337	882	75	71
Lancaster	162	1,624	282	740	193	365	86	96
Leicester	10	263	19	44	23	14	..	7
Lincoln	154	2,398	153	932	197	515	55	165
Monmouth	..	..	..	..	..	..	..	..
Norfolk	377	5,493	310	2,785	1,253	1,161	73	298
Northampton	174	3,130	497	901	308	505	55	33
Northumberland	157	1,885	408	760	231	423	57	49
Nottingham	10	157	16	59	15	22	1	21
Oxford	30	719	36	180	61	68	15	36
Rutland	..	..	..	..	..	..	..	..
Salop	38	1,247	87	239	96	83	4	56
Somerset	5	46	9	29	17	11	..	1
Stafford	57	957	62	413	103	209	39	62
*Suffolk	246	2,325	202	1,194	515	506	90	83
Surrey	151	2,869	282	1,180	435	549	94	102
Sussex	172	3,694	306	1,114	506	505	75	28
Warwick	65	1,371	66	378	75	210	41	52
Westmorland	..	..	..	..	..	..	..	..
Wilts	11	252	28	75	18	35	7	15
Worcester	10	136	2	38	10	22	3	3
York	1,455	16,103	1,508	6,954	490	4,133	715	1,616
COUNTIES OF ENGLAND	4,967	71,839	6,308	29,329	6,891	15,787	2,153	4,498
METROPOLITAN POLICE DISTRICT	767	11,668	2,179	7,013	3,056	3,122	268	567
ENGLAND TOTAL	5,734	83,507	8,487	36,342	9,947	18,909	2,421	5,065

* 143 have been deducted from the Totals of the County of Suffolk, that number having been entered erroneously.

REPORT No. 7, FOR WEEK ENDING DECEMBER 16th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.								
Anglesey	..	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..	..
Denbigh	103	2,362	21	1,196	59	861	114	162
Flint	41	582	80	260	23	137	22	78
Glamorgan	..	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..	..
WALES TOTAL	144	2,944	101	1,456	82	998	136	240
SCOTLAND.								
Aberdeen	22	427	42	247	177	66	3	1
Argyle	..	..	..	..	..	..	..	..
Ayr	18	330	80	129	20	81	10	18
Banff	..	..	..	..	..	..	..	..
Berwick	17	636	12	162	57	54	17	34
Bute	..	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..	..
Clackmannan	11	397	95	127	6	65	39	17
Dumbarton	42	701	58	443	14	300	51	78
Dumfries	25	709	24	346	36	217	16	77
Edinburgh	151	2,644	673	1,314	174	827	145	168
Elgin, or Moray	..	..	..	..	..	..	..	..
Fife	113	3,302	434	1,439	77	788	248	326
Forfar	514	13,701	2,243	5,444	688	2,895	812	1,049
Haddington	48	1,096	146	551	21	399	31	100
Inverness	..	..	..	..	..	..	..	..
Kincardine	16	496	15	212	72	72	11	57
Kinross	4	155	..	39	2	28	2	7
Kirkcudbright	1	42	1	17	5	9	1	2
Lanark	213	3,557	468	2,995	746	1,473	285	491
Linlithgow	20	481	132	234	38	148	31	17
Nairn	..	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..	..
Peebles	2	49	12	6	5	..	1	..
Perth	229	3,370	539	1,660	92	964	226	378
Renfrew	35	422	167	245	68	108	28	41
Ross and Cromarty	..	..	..	..	..	..	..	..
Roxburgh	6	158	8	31	5	17	3	6
Selkirk	2	82	4	20	3	5	2	10
Stirling	178	3,164	165	1,927	45	1,277	167	438
Sutherland	..	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..	..
SCOTLAND TOTAL	1,667	35,919	5,318	17,588	2,351	9,793	2,129	3,315

REPORT No. 7.—SUMMARY FOR WEEK ENDING DECEMBER 16th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 16, 1865.	Remaining from last Week's Report, corrected to Dec. 16, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 16th, 1865.				
			Attacked during Week ending Dec. 16, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	518	4,508	4,066	452	2,661	396	5,065
WALES	12	224	287	..	234	37	240
SCOTLAND	112	3,208	1,701	153	1,075	366	3,315
TOTAL	642	7,940	6,054	605	3,970	799	8,620

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 2nd, 1865.					
		Remaining Week ending Dec. 2.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	359	3,757	3,230	471	2,042	363	4,111
WALES	24	146	245	..	168	34	189
SCOTLAND	124	2,815	1,881	122	1,204	309	3,061
TOTAL	507	6,718	5,356	593	3,414	706	7,361

DISTRICTS.	Total Number of Farms, Sheds, or otherPlaces in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Total Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	5,734	83,507	8,487	36,342	9,947	18,909	2,421	5,065
WALES	144	2,944	101	1,456	82	998	136	240
SCOTLAND	1,667	35,919	5,318	17,588	2,351	9,793	2,129	3,315
TOTAL	7,545	122,370	13,906	55,386	12,380	29,700	4,686	8,620

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 23, 1865.	Remaining from last Week's Report, corrected to Dec. 23, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 23rd, 1865.				
			Attacked during Week ending Dec. 23, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	56	2	..	1	..	57
Berks	1	30	16	..	8	6	32
Buckingham	1	31	45	9	24	1	42
Cambridge	53	315	347	33	245	21	363
Chester	68	874	929	35	616	59	1,093
Cornwall	3	74	47	14	34	15	58
Cumberland	22	49	87	32	28	8	68
Derby	5	7	17	14	5	..	5
Devon	..	8	23	..	10	4	17
Dorset	..	..	..	..	..	..	..
Durham	4	30	20	1	31	..	18
Essex	4	128	28	4	11	8	133
Gloucester	..	2	..	..	..	..	2
Hants...	..	12	..	..	1	4	7
Hereford	5	31	41	..	35	2	35
Hertford	3	30	42	5	40	3	24
Huntingdon	15	121	187	4	160	14	130
Kent	2	71	37	6	34	4	64
Lancaster	9	100	78	18	36	14	110
Leicester	1	7	9	1	1	..	14
Lincoln	28	194	361	28	233	22	272
Monmouth	..	..	..	..	..	..	..
Norfolk	13	299	187	110	110	14	252
Northampton	12	33	84	12	63	12	30
Northumberland	..	49	11	..	22	4	34
Nottingham	..	21	..	..	6	..	15
Oxford	8	36	79	14	32	7	62
Rutland	..	7	..	..	..	..	7
Salop	4	58	72	6	10	..	114
Somerset	..	1	..	..	..	..	1
Stafford	..	62	3	1	4	5	55
Suffolk	7	106	28	18	19	6	91
Surrey	1	102	33	4	24	3	104
Sussex	4	31	5	3	2	1	30
Warwick	2	52	7	4	6	1	48
Westmoreland	..	..	..	..	..	..	..
Wilts	..	15	..	..	..	..	15
Worcester	..	3	4	1	1	2	3
York	154	1,817	1,212	77	809	280	1,863
COUNTIES OF ENGLAND	429	4,862	4,041	454	2,661	520	5,268
*METROPOLITAN POLICE DISTRICT	5	587	86	28	51	10	584
ENGLAND TOTAL ...	434	5,449	4,127	482	2,712	530	5,852

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* The Metropolitan Police District includes the whole of the County of Middlesex, and parts of the Counties of Essex, Kent, Herts, and Surrey.

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 23, 1865.	Remaining from last Week's Report, corrected to Dec. 23, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 23rd, 1865.				
			Attacked during Week ending Dec. 23, 1865.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	31	184	319	..	248	27	228
Flint	13	142	86	1	77	17	133
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	44	326	405	1	325	44	361
SCOTLAND.							
Aberdeen	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..
Ayr	..	18	12	..	14	1	15
Banff	..	..	..	..	..	..	..
Berwick	3	34	25	1	22	8	28
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	2	17	30	..	6	6	35
Dumbarton	4	85	40	..	17	11	97
Dumfries	4	85	27	2	50	..	60
Edinburgh	3	168	42	11	24	13	162
Elgin or Moray	..	..	..	..	..	..	..
Fife	21	336	309	..	196	10	439
Forfar	48	1,075	564	51	352	184	1,052
Haddington	..	100	1	1	2	5	93
Inverness	..	..	..	..	..	..	..
Kincardine	3	57	41	16	24	..	58
Kinross	2	7	17	..	7	1	16
Kirkcudbright	..	2	16	..	9	..	9
Lanark	4	530	77	..	73	19	515
Linlithgow	..	17	41	..	16	3	39
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..
Perth	14	402	235	2	143	83	409
Renfrew	10	41	74	7	21	9	78
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6
Selkirk	..	..	..	..	..	..	..
Stirling	1	438	173	..	110	33	468
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	119	3,418	1,724	91	1,086	386	3,579

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 16th, 1865.					
		Remaining Week ending Dec. 9.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.							
Bedford	..	60	11	1	10	4	56
Berks	1	29	3	..	2	..	30
Buckingham	4	31	21	7	10	4	31
Cambridge	48	244	445	60	301	26	302
Chester	90	547	876	27	534	46	816
Cornwall	6	41	77	17	32	..	69
Cumberland	8	63	43	28	24	5	49
Derby	2	5	10	4	4	..	7
Devon	..	7	2	..	..	1	8
Dorset	..	..	..	..	..	..	..
Durham	1	20	12	..	2	..	30
Essex	3	114	45	17	8	1	133
Gloucester	..	2	..	..	..	..	2
Hants	1	12	1	..	1	..	12
Hereford	3	38	42	..	41	9	30
Hertford	3	19	6	..	9	1	15
Huntingdon	16	133	109	5	118	5	114
Kent	4	57	31	..	10	7	71
Lancaster	16	104	69	13	60	4	96
Leicester	..	3	5	..	1	..	7
Lincoln	52	84	299	21	181	16	165
Monmouth	..	..	..	..	..	..	..
Norfolk	8	251	306	101	152	6	298
Northampton	13	37	93	17	72	8	33
Northumberland	..	48	54	2	41	10	49
Nottingham	1	18	4	..	1	..	21
Oxford	11	14	60	20	14	4	36
Rutland	..	..	..	..	..	..	..
Salop	7	47	18	1	5	3	56
Somerset	..	1	3	3	..	..	1
Stafford	1	64	25	11	13	3	62
Suffolk	12	76	39	6	24	2	83
Surrey	..	104	27	10	17	2	102
Sussex	4	36	8	2	13	1	28
Warwick	1	35	51	..	30	4	52
Westmoreland	..	..	..	..	..	..	..
Wilts	3	17	19	6	11	4	15
Worcester	1	..	7	1	1	2	3
York	184	1,571	1,202	65	874	218	1,616
COUNTIES OF ENGLAND	504	3,932	4,023	445	2,616	396	4,498
METROPOLITAN POLICE DISTRICT	14	576	43	7	45	..	567
ENGLAND TOTAL ...	518	4,508	4,066	452	2,661	396	5,065

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 16th, 1865.					
		Remaining Week ending Dec. 9.	Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.							
Anglesey	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..
Denbigh	11	164	262	..	227	37	162
Flint	1	60	25	..	7	..	78
Glamorgan	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..
WALES TOTAL	12	224	287	...	234	37	240
SCOTLAND.							
Aberdeen	..	1	..	..	..	..	1
Argyle	..	..	..	..	..	..	..
Ayr	..	8	19	2	6	1	18
Banff	..	..	..	..	..	..	..
Berwick	2	24	28	..	9	9	34
Bute	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..
Clackmannan	4	22	49	..	32	22	17
Dumbarton	3	74	22	1	15	2	78
Dumfries	2	93	14	..	20	10	77
Edinburgh	1	163	36	2	20	9	168
Elgin, or Moray	..	..	..	..	..	..	..
Fife	9	228	227	1	108	20	326
Forfar	32	1,079	517	41	358	148	1,049
Haddington	2	119	21	6	31	3	100
Inverness	..	..	..	..	..	..	..
Kincardine	1	44	64	19	27	5	57
Kinross	1	3	9	..	4	1	7
Kirkcudbright	..	2	..	..	..	..	2
Lanark	7	503	168	75	83	22	491
Linlithgow	4	23	18	2	12	10	17
Nairn	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..
Peebles	1	..	3	3	..	..	..
Perth	30	360	236	..	161	57	378
Renfrew	4	18	44	..	16	5	41
Ross and Cromarty	..	..	..	..	..	..	..
Roxburgh	..	19	..	..	3	..	16
Selkirk	..	..	..	..	..	..	..
Stirling	9	425	226	1	170	42	438
Sutherland	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..
SCOTLAND TOTAL	112	3,208	1,701	153	1,075	366	3,315

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.								
Bedford	42	571	59	338	72	180	29	57
Berks	57	944	12	528	94	314	88	32
Buckingham	60	1,377	80	405	152	176	35	42
Cambridge	327	5,178	588	2,343	537	1,366	77	363
Chester	413	10,728	357	3,463	168	2,004	198	1,093
Cornwall	47	864	62	343	70	199	16	58
Cumberland	51	1,067	121	340	172	81	19	68
Derby	40	398	22	170	103	52	10	5
Devon	23	224	6	126	46	52	11	17
Dorset	1	12	..	12	4	8	..	..
Durham	41	549	89	215	77	92	28	18
Essex	324	3,083	338	1,802	356	1,111	202	133
Gloucester	12	347	23	75	52	20	1	2
Hants	45	576	58	245	59	158	21	7
Hereford	25	382	..	329	40	223	31	35
Hertford	43	610	46	270	53	168	25	24
Huntingdon	136	2,288	177	1,008	131	718	29	130
Kent	241	2,718	285	1,402	343	916	79	64
Lancaster	178	1,780	300	831	218	403	100	110
Leicester	12	268	19	53	24	15	..	14
Lincoln	197	3,204	218	1,375	242	784	77	272
Monmouth	..	..	..	..	..	..	..	..
Norfolk	402	5,837	338	3,010	1,394	1,277	87	252
Northampton	186	3,361	545	985	320	568	67	30
Northumberland	158	1,906	417	785	238	452	61	34
Nottingham	10	157	16	59	15	28	1	15
Oxford	38	850	37	259	75	100	22	62
Rutland	1	13	..	10	..	3	..	7
Salop	43	1,304	95	314	102	94	4	114
Somerset	5	46	9	29	17	11	..	1
Stafford	57	957	62	416	104	213	44	55
Suffolk	259	2,542	202	1,259	535	537	96	91
Surrey	152	2,927	310	1,213	439	573	97	104
Sussex	179	3,757	308	1,131	512	513	76	30
Warwick	67	1,406	99	385	79	216	42	48
Westmoreland	..	..	..	..	..	..	..	..
Wilts	11	252	28	75	18	35	7	15
Worcester	11	171	2	42	11	23	5	3
York	1,688	18,786	1,788	8,694	620	5,201	1,010	1,863
COUNTIES OF ENGLAND	5,582	81,440	7,116	34,339	7,492	18,884	2,695	5,268
METROPOLITAN POLICE DISTRICT	782	11,863	2,191	7,175	3,089	3,222	280	584
ENGLAND TOTAL ...	6,364	93,303	9,307	41,514	10,581	22,106	2,975	5,852

REPORT No. 8, FOR WEEK ENDING DECEMBER 23rd, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.								
Anglesey	..	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..	..
Denbigh	141	2,845	68	1,566	59	1,138	141	228
Flint	78	1,223	84	502	24	289	56	133
Glamorgan	..	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..	..
WALES TOTAL	219	4,068	152	2,068	83	1,427	197	361
SCOTLAND.								
Aberdeen	26	473	49	272	201	68	3	..
Argyle	..	..	..	..	..	..	..	..
Ayr	18	330	80	141	20	95	11	15
Banff	..	..	..	..	..	..	..	..
Berwick	20	759	16	187	58	76	25	28
Bute	..	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..	..
Clackmannan	13	434	111	157	6	71	45	35
Dumbarton	48	775	63	494	14	321	62	97
Dumfries	30	881	38	388	38	274	16	60
Edinburgh	154	2,705	681	1,356	185	851	158	162
Elgin, or Moray	..	..	..	..	..	..	..	..
Fife	136	4,035	566	1,800	77	1,002	282	439
Forfar	604	15,772	2,673	6.311	749	3,451	1,059	1,052
Haddington	48	1,096	146	552	22	401	36	93
Inverness	..	..	..	..	..	..	..	..
Kincardine	19	602	15	253	88	96	11	58
Kinross	6	183	..	56	2	35	3	16
Kirkcudbright	1	42	1	33	5	18	1	9
Lanark	228	3,755	478	3,237	746	1,661	315	515
Linlithgow	20	481	139	275	38	164	34	39
Nairn	..	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..	..
Peebles	2	49	12	6	5	..	1	..
Perth	249	3,960	552	2,043	94	1,211	329	409
Renfrew	45	609	174	319	75	129	37	78
Ross and Cromarty	..	..	..	..	..	..	..	..
Roxburgh	8	158	8	31	5	17	3	6
*Selkirk	..	..	..	..	..	..	..	..
Stirling	184	3,274	176	2,100	45	1,387	200	468
Sutherland	..	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..	..
SCOTLAND TOTAL	1,859	40,373	5,978	20,011	2,473	11,328	2,631	3,579

* The cases reported as occurring in the County of Selkirk have been transferred to Roxburgh, having been originally entered in error by the Inspector as belonging to the former county.

REPORT No. 8.—SUMMARY FOR WEEK ENDING DECEMBER 23rd, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 23, 1865.	Remaining from last Week's Report, corrected to Dec. 23, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 23rd, 1865.				
			Attacked during Week ending Dec. 23, 1865.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	434	5,449	4,127	482	2,712	530	5,852
WALES	44	326	405	1	325	44	361
SCOTLAND	119	3,418	1,724	91	1,086	386	3,579
TOTAL *.........	597	9,193	6,256	574	4,123	960	9,792

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.	2. Diseased Animals reported for the Week ending Dec. 16th, 1865.					
		Remaining Week ending Dec. 9.	Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	518	4,508	4,066	452	2,661	396	5,065
WALES	12	224	287	..	234	37	240
SCOTLAND	112	3,208	1,701	153	1,075	366	3,315
TOTAL	642	7,940	6,054	605	3,970	799	8,620

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND (Total)......	6,364	93,303	9,307	41,514	10,581	22,106	2,975	5,852
WALES	219	4,068	152	2,068	83	1,427	197	361
SCOTLAND	1.859	40,373	5,978	20,011	2,473	11,328	2,631	3,579
TOTAL	8,442	137,744	15,437	63,593	13,137	34,861	5,803	9,792

* Returns of 1,052 cases have been received too late for insertion in this Report.

REPORT No. 9, FOR WEEK ENDING DECEMBER 30th, 1865.

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, and other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 30, 1865.	Remaining from last Week's Report, corrected to Dec. 30, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 30th, 1865.					Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.
			Attacked during Week ending Dec. 30, 1865.	Killed.	Died.	Recovered.	Remaining.	
ENGLAND.								
Bedford	3	68	9	..	9	9	59	..
Berks	2	32	7	..	1	4	34	1
Buckingham	5	43	46	16	33	6	34	1
Cambridge	59	374	444	46	310	40	422	53
Chester	158	1,201	1,763	30	1,294	119	1,521	68
Cornwall	3	69	79	16	42	18	72	3
Cumberland	13	70	154	25	54	13	132	22
Derby	1	5	4	1	1	1	6	5
Devon	..	22	..	..	..	..	22	..
Dorset	..	..	..	..	..	..	..	..
Durham	1	25	17	4	2	10	26	4
Essex	3	123	20	..	19	2	122	4
Gloucester	1	2	1	1	..	..	2	..
Hants	..	7	7	..	1	1	12	..
*Hereford	..	35	..	..	..	..	35	5
Hertford	1	24	46	8	27	3	32	3
Huntingdon	28	144	235	13	180	13	173	15
Kent	3	69	29	5	19	..	74	2
Lancaster	15	141	60	9	28	11	153	9
Leicester	12	16	47	18	21	..	24	1
Lincoln	70	315	467	28	390	38	326	28
Monmouth	..	..	..	..	..	..	..	..
Norfolk	14	253	74	50	41	8	228	13
Northampton	20	40	99	26	70	2	41	12
Northumberland	1	34	42	2	22	1	51	..
Nottingham	3	19	8	..	5	7	15	..
Oxford	6	62	102	17	58	10	79	8
Rutland	..	14	4	3	6	..	9	..
Salop	4	114	35	3	64	1	81	4
Somerset	..	1	..	..	..	..	1	..
Stafford	4	74	80	19	38	11	86	..
Suffolk	3	92	102	21	71	3	99	7
Surrey	..	106	14	2	15	8	95	1
Sussex	3	29	7	4	4	1	27	4
Warwick	5	49	24	1	9	12	51	2
Westmoreland	..	..	..	..	..	..	..	..
Wilts	2	19	6	3	9	7	6	..
Worcester	..	3	3	..	2	3	1	..
York	229	2,123	1,446	81	1,002	235	2,251	154
COUNTIES OF ENGLAND	672	5,817	5,481	452	3,847	597	6,402	429
METROPOLITAN POLICE DISTRICT	12	592	31	11	20	4	588	5
ENGLAND TOTAL	684	6,409	5,512	463	3,867	601	6,990	434

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* No returns for the Week have been received from the County of Hereford up to the time of preparing this Report.

REPORT No. 9, FOR WEEK ENDING DECEMBER 30th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 30, 1865.	Remaining from last Week's Report, corrected to Dec. 30, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 30th, 1865.					Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.
			Attacked during Week ending Dec. 30, 1865.	Killed.	Died.	Recovered.	Remaining.	
WALES.								
Anglesey	..	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..	..
*Denbigh	1	233	13	9	13	..	224	31
Flint	23	134	193	1	118	21	187	13
Glamorgan	..	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..	..
WALES TOTAL	24	367	206	10	131	21	411	44
SCOTLAND.								
Aberdeen	..	..	..	..	..	..	..	..
Argyle	..	..	..	..	..	..	..	..
Ayr	..	15	3	..	7	4	7	..
Banff	..	..	..	..	..	..	..	..
Berwick	1	28	34	1	17	12	32	3
Bute	..	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..	..
Clackmannan	4	35	26	1	10	14	36	2
Dumbarton	3	101	61	..	52	4	106	4
Dumfries	..	60	68	..	62	..	66	4
Edinburgh	5	162	20	2	13	5	162	3
Elgin, or Moray	..	..	..	..	..	..	..	..
Fife	32	439	454	..	280	167	446	21
Forfar	26	1,050	482	33	283	168	1,048	48
Haddington	3	94	20	2	23	8	81	..
Inverness	..	..	..	..	..	..	..	..
Kincardine	6	58	77	8	30	..	97	3
Kinross	2	16	10	..	12	1	13	2
Kirkcudbright	..	9	2	1	5	3	2	..
Lanark	16	505	145	101	78	2	469	4
Linlithgow	..	39	7	..	24	12	10	..
Nairn	..	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..	..
Peebles	..	..	..	..	..	..	..	..
Perth	35	446	437	3	270	89	521	14
Renfrew	6	85	76	2	46	22	91	10
Ross and Cromarty	..	..	..	..	..	..	..	..
Roxburgh	..	6	..	..	..	..	6	..
Selkirk	..	..	..	..	..	..	..	..
Stirling	10	481	53	..	38	8	488	1
Sutherland	..	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..	..
SCOTLAND TOTAL	149	3,629	1,975	154	1,250	519	3,681	119

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* The Inspector of the most infected District in the County of Denbigh had not sent in his Return up to the time of preparing this Report

REPORT No. 9, FOR WEEK ENDING DECEMBER 30th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. NOTE.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
ENGLAND.								
Bedford	51	644	60	368	73	198	38	59
Berks	77	981	12	536	94	316	92	34
Buckingham	72	1,516	84	453	168	210	41	34
Cambridge	398	6,177	717	2,825	585	1,701	117	422
Chester	633	16,345	686	5,695	200	3,651	323	1,521
Cornwall	60	1,034	63	450	87	257	34	72
Cumberland	66	1,364	171	497	197	136	32	132
Derby	41	400	22	174	104	53	11	6
Devon	25	265	6	134	46	55	11	22
Dorset	1	12	..	12	4	8	..	..
Durham	45	602	137	254	81	109	38	26
Essex	331	3,130	340	1,831	356	1,144	209	122
Gloucester	13	350	23	76	53	20	1	2
Hants	46	586	58	254	59	161	22	12
*Hereford	25	382	..	329	40	223	31	35
Hertford	44	645	52	316	61	195	28	32
Huntingdon	169	2,942	227	1,278	149	914	42	173
Kent	245	2,749	300	1,437	349	935	79	74
Lancaster	218	2,212	345	974	240	463	118	153
Leicester	25	517	33	110	42	44	..	24
Lincoln	293	4,444	297	2,007	271	1,293	117	326
Monmouth	..	..	..	..	..	..	..	..
Norfolk	425	6,122	344	3,110	1,451	1,333	98	228
Northampton	210	3,926	618	1,119	359	650	69	41
Northumberland	160	1,971	425	827	240	474	62	51
Nottingham	14	307	17	78	15	40	8	15
Oxford	44	980	42	361	92	158	32	79
Rutland	1	26	..	24	3	12	..	9
Salop	48	1,405	95	350	105	159	5	81
Somerset	5	46	9	29	17	11	..	1
Stafford	73	1,532	96	642	136	365	55	86
Suffolk	275	2,614	216	1,365	558	609	99	99
Surrey	154	2,975	310	1,231	441	590	105	95
Sussex	185	3,817	308	1,144	517	519	81	27
Warwick	74	1,490	103	411	80	226	54	51
Westmoreland	..	..	..	..	..	..	..	..
Wilts	18	399	35	89	24	45	14	6
Worcester	11	171	3	45	11	25	8	1
York	2,065	23,566	2,164	10,891	731	6,612	1,297	2,251
COUNTIES OF ENGLAND	6,640	98,644	8,418	41,726	8,039	23,914	3,371	6,402
METROPOLITAN POLICE DISTRICT	803	12,003	2,218	7,238	3,103	3,263	284	588
ENGLAND TOTAL	7,443	110,647	10,636	48,964	11,142	27,177	3,655	6,990

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* No returns for the Week have been received from the County of Hereford up to the time of preparing this Report.

REPORT No. 9, FOR WEEK ENDING DECEMBER 30th, 1865—*continued.*

COUNTIES OR DISTRICTS.	Total Number of Farms, Sheds, or otherPlaces in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. Note.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
WALES.								
Anglesey	..	..	..	..	..	..	..	..
Brecon	..	..	..	..	..	..	..	..
Cardigan	..	..	..	..	..	..	..	..
Caermarthen	..	..	..	..	..	..	..	..
Carnarvon	..	..	..	..	..	..	..	..
*Denbigh	143	2,880	68	1,591	68	1,158	141	224
Flint	102	1,656	84	696	25	407	77	187
Glamorgan	..	..	..	..	..	..	..	..
Merioneth	..	..	..	..	..	..	..	..
Montgomery	..	..	..	..	..	..	..	..
Pembroke	..	..	..	..	..	..	..	..
Radnor	..	..	..	..	..	..	..	..
WALES TOTAL	245	4,536	152	2,287	93	1,565	218	411
SCOTLAND.								
Aberdeen	27	506	49	299	219	77	3	..
Argyle	..	..	..	..	..	..	..	..
Ayr	20	330	80	144	20	102	15	7
Banff	..	..	..	..	..	..	..	..
Berwick	22	903	16	223	61	93	37	32
Bute	..	..	..	..	..	..	..	..
Caithness	..	..	..	..	..	..	..	..
Clackmannan	17	502	122	183	7	81	59	36
Dumbarton	54	880	74	562	14	376	66	106
Dumfries	31	939	70	458	39	337	16	66
Edinburgh	159	2,741	696	1,376	187	864	163	162
Elgin, or Moray	..	..	..	..	..	..	..	..
Fife	169	4,748	660	2,254	77	1,282	449	446
Forfar	647	16,637	3,010	6,915	805	3,817	1,245	1,048
Haddington	53	1,182	150	574	24	425	44	81
Inverness	..	..	..	..	..	..	..	..
Kincardine	25	725	15	330	96	126	11	97
Kinross	8	296	..	66	2	47	4	13
Kirkcudbright	1	42	1	35	6	23	4	2
Lanark	250	3,855	481	3,401	867	1,748	317	469
Linlithgow	21	506	140	284	38	189	47	10
Nairn	..	..	..	..	..	..	..	..
Orkney and Shetland	..	..	..	..	..	..	..	..
Peebles	2	49	12	6	5	..	1	..
Perth	293	4,978	623	2,556	97	1,519	419	521
Renfrew	52	707	182	411	77	184	59	91
Ross and Cromarty	..	..	..	..	..	..	..	..
Roxburgh	8	158	8	31	5	17	3	6
Selkirk	6	402	13	17	5	10	2	..
Stirling	200	3,441	176	2,173	45	1,432	208	488
Sutherland	..	..	..	..	..	..	..	..
Wigtown	..	..	..	..	..	..	..	..
SCOTLAND TOTAL	2,065	44,527	6,578	22,298	2,696	12,749	3,172	3,681

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* The Inspector of the most infected District in the County of Denbigh had not sent in his Return up to the time of preparing this Report.

REPORT No. 9.—SUMMARY FOR WEEK ENDING DECEMBER 30th, 1865.

DISTRICTS.	Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week ending Dec. 30, 1865.	Remaining from last Week's Report, corrected to Dec. 30, 1865.	1. Cases of "Cattle Plague" reported as having commenced during the Week ending Dec. 30th, 1865.					Number of Farms, Sheds, or other Places in which fresh Cases of Disease are reported to have occurred during the Week.
			Attacked during Week ending Dec. 30, 1865.	Killed.	Died.	Recovered.	Remaining.	
England (Total)......	684	6,409	5,512	463	3,867	601	6,990	434
Wales	24	367	206	10	131	21	411	44
Scotland	149	3,629	1,975	154	1,250	519	3,681	119
Total *	857	10,405	7,693	627	5,248	1,141	11,082	597

DISTRICTS.	Total Number of Farms, Sheds, or other Places in which the Disease has appeared.	Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist.	Number of Animals slaughtered Healthy.	3. Total Number of Diseased Animals reported since the commencement of the Disease. Note.—Additions will, from time to time, be made of "back" Cases, not included in the Weekly Reports, and corrections (if any) arising from additional information received since last Report.				
				Attacked.	Killed.	Died.	Recovered.	Remaining.
England (Total)......	7,443	110,647	10,636	48,964	11,142	27,177	3,655	6,990
Wales	245	4,536	152	2,287	93	1,565	218	411
Scotland	2,065	44,527	6,578	22,298	2,696	12,749	3,172	3,681
Total	9,753	159,710	17,366	73,549	13,931	41,491	7,045	11,082

* Returns of 252 cases have been received too late for insertion in this Report.

REPORT No. 1.—PERCENTAGE for Week ending NOVEMBER 4, 1865.

	Counties of England.	Metropolitan District.	Wales.	Scotland.	Total of England, Wales, and Scotland.
Of the Total Number of Cattle on Farms, in Sheds, or other Places, where the Disease has been officially reported to exist, there have been Attacked ...	37·708	56·613	61·214	45·506	44·118
Of the Total Number of Animals *Attacked*, there were:					
Killed	37·607	48·077	22·845	24·195	36·422
Died	46·479	39·839	60·776	40·826	43·183
Recovered	6·613	2·413	3·017	5·962	5·235
And there are now remaining Diseased	9·301	9·671	13·362	29·017	15·160
	100·000	100·000	100·000	100·000	100·000

REPORT No. 2.—PERCENTAGE for Week ending NOVEMBER 11, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist, there have been Attacked	39·232	56·108	41·744	44·076	43·921
Of the Total Number of Animals *Attacked*, there were:					
Killed	35·373	48·199	20·522	22·246	34·274
Died	46·020	39·786	66·045	45·739	44·656
Recovered	6·794	2·620	3·731	7·398	5·940
And there are now remaining Diseased	11·813	9·395	9·702	24·617	15·130
	100·000	100·000	100·000	100·000	100·000

REPORT No. 3.—PERCENTAGE for Week ending NOVEMBER 18, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist, there have been Attacked ...	40·505	56·928	39·738	42·848	44·032
Of the Total Number of Animals *Attacked*, there were:					
Killed	34·540	47·040	15·385	20·867	32·801
Died	47·581	40·392	62·912	47·645	46·223
Recovered	6·927	3·001	5·220	8·337	6·478
And there are now remaining Diseased	10·952	9·567	16·483	23·151	14·498
	100·000	100·000	100·000	100·000	100·000

REPORT No. 4.—PERCENTAGE FOR WEEK ENDING NOVEMBER 25, 1865.

	Counties of England.	Metropolitan District.	Wales.	Scotland.	Total of England, Wales, and Scotland.
Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist, there have been Attacked	39·452	61·448	45·636	45·280	44·486
Of the Total Number of Animals *Attacked*, there were:					
Killed	32·244	44·491	10·382	17·636	29·606
Died	47·879	443·360	61·749	50·975	48·212
Recovered............	6·757	3·245	4·736	10·138	7·121
And there are now remaining Diseased	13.120	8·904	23·133	21·251	15·061
	100·000	100·000	100·000	100·000	100·000

REPORT No. 5.—PERCENTAGE FOR WEEK ENDING DECEMBER 2, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist, there have been Attacked	39·039	61·238	44·438	46·731	44·123
Of the Total Number of Animals *Attacked*, there were:					
Killed	28·989	44·395	9·890	16·090	27·162
Died	49·805	43·590	69·109	53·147	50·199
Recovered............	6·902	3·309	7·936	10·126	7·325
And there are now remaining Diseased	14·304	8·736	13·065	20·637	15·314
	100·000	100·000	100·000	100·000	100·000

REPORT No. 6.—PERCENTAGE FOR WEEK ENDING DECEMBER 9, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist (after deducting those slaughtered healthy), there have been Attacked	44·358	74·372	45·477	55·042	50·575
Of the Total Number of Animals *Attacked*, there were:					
Killed	26·286	43·752	7·381	14·119	24·479
Died	51·616	44·140	66·696	54·913	51·935
Recovered............	7·271	3·849	8·911	10·931	7·990
And there are now remaining Diseased	14·827	8·259	17·012	20·037	15·596
	100·000	100·000	100·000	100·000	100·000

REPORT No. 7.—PERCENTAGE FOR WEEK ENDING DECEMBER 16, 1865.

	Counties of England.	Metropolitan District.	Wales.	Scotland.	Total of England, Wales, and Scotland.
Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist (after deducting those slaughtered healthy), there have been Attacked	44·756	73·907	51·214	57·475	51·064
Of the Total Number of Animals *Attacked*, there were:					
Killed	23·496	43·576	5·632	13·367	22·352
Died	53·827	44·517	68·544	55·680	53·624
Recovered............	7·341	3·822	9·341	12·105	8·461
And there are now remaining Diseased	15·336	8.085	16·483	18·848	15·563
	100·000	100·000	100 000	100·000	100·000

REPORT No. 8.—PERCENTAGE FOR WEEK ENDING DECEMBER 23, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease, has been officially reported to exist (after deducting those slaughtered healthy), there have been Attacked	46·202	74·183	52·809	58·180	51·995
Of the Total Number of Animals *Attacked*, there were:					
Killed	21·818	43·052	4·014	12·358	20·658
Died	54·993	44·906	69·004	56·609	54·819
Recovered............	7·848	3·903	9·526	13·148	9·125
And there are now remaining Diseased	15·341	8·139	17·456	17·885	15·398
	100·000	100·000	100·000	100·000	100·000

REPORT No. 9.—PERCENTAGE FOR WEEK ENDING DECEMBER 30, 1865.

Of the Total Number of Cattle on Farms, in Sheds, or other Places where the Disease has been officially reported to exist (after deducting those slaughtered healthy), there have been Attacked	46·246	73·970	52·167	58·758	51·670
Of the Total Number of Animals *Attacked*, there were:					
Killed	19·266	42·871	4·067	12·091	18·941
Died	57·312	45·081	68·430	57·176	56·413
Recovered............	8·079	3·924	9·532	14·225	9·579
And there are now remaining Diseased	15·343	8·124	17·971	16·508	15·067
	100·000	100·000	100·000	100·000	100·000

THE CATTLE PLAGUE.

PART III.

OFFICIAL REPORT

OF THE

INTERNATIONAL VETERINARY CONGRESS,

Held in HAMBURG, from the 14th to the 18th of JULY, 1863.

IN March, 1863, the following circular was issued by me from Edinburgh:—

PROPOSED INTERNATIONAL CONGRESS OF VETERINARY SURGEONS,

TO BE HELD IN HAMBURG FROM THE 14TH TO THE 20TH JULY, 1863.

It is a fact well worthy of notice, that with progress in the commercial relations established between different countries, with greater facilities for the transit and sale of stock so as to meet the demands of Western Europe, there has been, during the last twenty years, an increased prevalence of contagious disorders.

The want of accurate statistics relating to the losses sustained by plagues communicated from country to country, in the lines of communication established by trade, is severely felt. It is owing to this want that no measures have been suggested to, or, at all events, adopted by the several Governments of Europe, for their individual and mutual benefit; and that Europe is now suffering, to a very considerable extent, from the system by which one people attempts to save itself from loss, by disposing of diseased and infected stock to another.

It is with a view to give an impetus to the rearing of stock—it is as a means of direct encouragement to agricultural enterprise, that it is proposed to hold an International Congress of the Professors of Veterinary Science at Hamburg, and of members of the veterinary profession generally, during the period that agriculturists are invited to derive all the advantages of an International Agricultural Exhibition.

It is hoped that the representatives from different parts of Europe will meet together with an earnest desire to demonstrate the importance of Veterinary Science, and with a view to suggest an uniform system throughout Europe for the prevention of plagues, that are a source, at all times, of pecuniary loss, and not unfrequently of disease to man.

In order to fulfil these objects, it is proposed that the representatives from different countries should communicate in the form of essays as much information as possible on the following points:—

First. On the extent to which contagious diseases prevail in their respective countries.

Secondly. On the imports and exports of live stock, and on the direction in which the plagues chiefly spread in each country.

Thirdly. On the means recognised by the author of the essay as most effectual to prevent the diseases.

Original papers on any veterinary subject may be read during the International Congress.

It is, moreover, proposed that, with the aid of the information thus obtained, a statement of facts should be prepared, and resolutions drawn up, to be submitted to the different Governments of Europe, with a view to the institution of an uniform system for the protection of stock from plagues, which owe their origin, as a rule, to the climates and soils of the East.

It will then remain for the people or the Governments of different countries to adopt or reject the propositions of those best qualified to advise on the important social questions to be discussed at the International Congress. If the advice be acted on, the object of the Congress will be achieved; and if not, there can be no doubt that an interchange of opinion and a collection of facts cannot fail to interest as well as benefit the veterinary profession in all parts of Europe.

(Signed) JOHN GAMGEE.

FIRST SITTING, 14TH JULY.

The Congress opened its proceedings on the 14th of July, 1863, by appointing as office-bearers the following members:—

Dr. *Hering*, Obermedizinalrath, Principal of the Royal Veterinary College, Stuttgart, as President;

John Gamgee, Principal of the New Veterinary College, Edinburgh, as Vice-President;

Dr. *Fürstenberg*, Professor of the Royal Prussian Agricultural Academy, Eldena, and

Probstmayer, Regimental Veterinary Surgeon in the Royal Bavarian Service, Munich, as Secretaries;

Schrader, Jun., Veterinary Surgeon, Hamburg, as Treasurer.

Professor *Hering* thanked the Assembly for the confidence reposed in him, as indicated by its unanimous choice; he bade all a hearty welcome, and brought at once before their consideration the published draught of Statutes for the Congress; upon which it was agreed that the sum to be deposited by each member should be fixed at two thalers, that the primary project of forming separate under-sections or divisions should be abandoned as unnecessary, and that the speeches and statements to be delivered should be as concise and short as possible and should be restricted from entering into needless details.

Professor Gamgee's proposal to elect a Sub-Committee of four to six members, on whom should devolve any special business which might be found imperative during the course of future proceedings, was, after a short debate, adjourned until the close of the session, when the necessity for such a committee could be more clearly shown.

It was determined that the principal object of the meeting was to engage in the discussion of questions of universal interest, especially of such as relate to the propagation and to the prevention of infectious and epizootic diseases amongst the domestic animals.

Professor *Fuchs*, of Heidelberg, moved that "those diseases should be specified which seemed especially to call for the interference of legal authority," in order to arrive at the most feasible plan for their prevention.

Professor *Haubner*, of Dresden, considered it superfluous to draw up a list of contagious diseases, and was of opinion that the object of an international Congress should be to discuss only such diseases of animals as call peremptorily for the allied interference of several States for their extirpation: these were the Rinderpest and Pleuro-pneumonia, and were therefore the most important subjects for discussion.

Professor *Röll*, of Vienna, expressed a similar opinion; and whilst agreeing with the preceding speaker that the two diseases specified by him were of the greatest international interest, and should first occupy the attention of the meeting, yet he would recommend the adoption of Mr. Fuchs' motion as soon as the Assembly had arrived at a common view of the preventive measures to be taken with regard to the above-named diseases.

Professor *Nicklas*, of Munich, concurring with the last speaker, Dr. Haubner's motion was put from the chair in the following terms:—

"That the Rinderpest and Pleuro-pneumonia should form the primary subjects for discussion, and that on the conclusion of the debates on them, and providing due time remained for the purpose, Professor Fuchs' motion should be brought under consideration."

Unanimously agreed upon.

After a few preliminary formalities had been settled, President Hering enquired, Whether the Assembly should proceed at once to the discussion of the subjects agreed upon, as many gentlemen were anxiously expected that had not yet arrived? The answer being in the affirmative,

Professor *Röll*, of Vienna, rose to speak on the Steppe murrain. He characterised the most necessary steps towards the final extirpation of the disease as consisting in the prevention of its spread from Russia, and in the adoption of the most energetic measures at home. He confined himself for the present to the first of these measures, and described the quarantine regulations then in force on the eastern frontier of Austria with regard to the cattle coming from Russia. He remarked that since the year 1849 the length of the quarantine had been fixed at twenty-one days, and that nevertheless, at very short intervals, contagious typhus had broken out in the different provinces of the Empire. The introduction of the contagion was not effected by cattle which had obeyed the quarantine regulations, as was amply proved by the official returns, but invariably by such droves as had crossed the frontier in a secret manner. This illegal practice had even given rise to insurance companies, which guaranteed the safe arrival of the smuggled cattle. All steps which had hitherto been taken against cattle-smuggling had proved fruitless or very insufficient, and this was due, in his opinion, to the extreme length of the quarantine period, which offered temptations to the smuggler.. The Professor next introduced the question, Whether it was truly shown by experience, and knowledge of the period of Incubation of the Cattle Plague, that a quarantine period of twenty-one days applied to animals imported from the countries where the disease originated, should still be considered absolutely necessary in order to protect Germany and Western Europe from this contagious malady? The inoculation experiments made in Austria during the existence of the plague, as well as those made in Russia since the year 1851, proved with sufficient clearness that the period of incubation of Rinderpest extended generally from three to five days, and rarely reached the length of eight days. This fact being once proved satisfactorily, a quarantine extending beyond the longest period of incubation became unnecessary for the safety of home-stock. With reference to the fact that contagious typhus appears in a much milder form among the cattle of the Steppes, a period of ten days, viz. an addition of a couple of days to the longest period of incubation, would seem sufficient. The speaker was of opinion that this period of ten days quarantine should be maintained on the eastern frontier of the empire constantly, independently of any reports that might be circulated about the presence of the plague in Russia, and that a simple inspection of the cattle, crossing the frontier at a time when the disease was said not to be present in Russia, could not be entertained. Before however the quarantine period could be reduced to ten days, it would be necessary to reorganise the cattle-quarantine regulations and institutions, and

First. To provide places of Inspection on all such points of the frontier as seem most requisite for the necessities of the cattle trade, and where the necessary buildings for enclosing the cattle could be best erected, whither the requisite quantities of fodder could be most easily transported, and where wells and pasturage are at command.

2ndly. To effect a judicious distribution of these quarantine places of Inspection, so that the different droves may be isolated from one another; that the sick animals may be placed in separate stables, and that each possess a locality for the purification of animals and of animal produce.

3rdly. To appoint to these places of Inspection veterinary surgeons of experience, and fully familiarised with the primary symptoms of the plague, together with a sufficient number of practised and competent servants.

4thly. To enforce more strictly the frontier-guard, and to punish with much greater severity all found guilty of cattle smuggling.

The speaker repeated that during the existence of the twenty-one days' quarantine, Steppe Murrain had been almost without exception introduced by the smuggling of cattle: only once in fourteen years had the pest been brought over by means of cattle which had observed the quarantine regulations. The profits of this smuggling trade, which was encouraged by Insurance Societies, increased with the duration of the quarantine period; for during the latter, capital is useless, the cattle loses in condition, and the food of each animal costs six or seven florins. It is scarcely necessary to add, that before leaving these places of inspection and of quarantine, the cattle would have to undergo a thorough cleansing, to be branded with the quarantine mark, to be furnished with a sanitary certificate, and that the droves would have to be strictly kept to the roads allotted to each separately. The Professor produced statistics upon the spread of the Cattle Plague in the Austrian States from the year 1819 to July, 1863, and begged the Chair to open a discussion upon the question, to determine whether, upon due experience and knowledge of the period of incubation of the Cattle Plague, a quarantine of ten days does not seem sufficient to ensure the home-cattle from danger of contagion from Russia?

Professor *Haubner* (Dresden) entirely agreed with the last speaker; he was also of opinion, that if two, or even four days of additional quarantine period were added to the usual incubation period of the steppe murrain, it would be all that would be required for the purpose of safety. Should, contrary to all expectation, cases occur, however, after the expiration of the tenth day of the inoculation of the disease, this should not interfere with the period fixed for quarantine observation, as it would simply be exceptional, and not the general rule. He drew attention to the fact that the Steppe Murrain had of late years —by reason of the rapid means of transit by railway—grown to be of the highest importance to Western Europe; that, even with the most strict surveillance, the pest was sure to reappear, sooner or later, in the heart of Germany; and that too severe measures taken at one particular place would only serve to direct the trade towards another less strictly guarded and which he was sure would be found. He warned them against too great severity, unsupported by science and experience, and expressed his conviction that such a system would do more harm than the murrain itself. He considered the importation of the Rinderpest a lesser evil than the ruin of the manufactories.

Professor *Zangger* (Zürich) did not entirely concur in this. Without opposing directly the opinion that a quarantine of ten days was sufficient, still he thought that if its present duration (twenty-one days) was shortened, it would be the more necessary that all railways should be prohibited from transporting any other cattle from the East except such as were furnished with certificates of health. The quarantine inspection-places should be also of a nature to justify expectations of success. He remarked that the railways were not always in the hands of the State, and that such regulations did not exist everywhere as were requisite and necessary to prevent the spread of the disease in question. He thought that the transport of cattle by railway should be most particularly watched over by Governments, especially by those Governments in whose vicinity Rinderpest had broken out.

Professor *Röll*, in answer to the question, Whether a quarantine period of ten days suffices in every case, whether the Steppe murrain be in the country or at a great distance? replied in the affirmative; especially if the quarantine be regularly kept up, though nothing be known of the presence of the disease in neighbouring lands, as is often the case with Moldavia, Wallachia, and Bessarabia. He repeated that a mere inspection of the animals would not suffice, as it would be impossible to find out, by such means, the animals less dangerously infected. With regard to the regulations affecting the transport of cattle by railway, he was of opinion that it was no easy matter to superintend them when so many as 2000 to 3000 head of cattle were unloaded in one day and at one place (Florisdorf); nevertheless, Austria observed carefully these prudential measures, and many an abuse of them had been reformed. For such cattle as remain in the country, or are fattened in it, a certificate of health from the last owner of the animal would suffice.

Professor *Fuchs* (Heidelberg), who wished the question to be discussed in a purely scientific manner, was in favour of the observance of the triple incubation period (three weeks), as it had been ascertained that cattle can be infected by contact with matter brought into the quarantine stable by other animals, and asked, upon this ground, whether it was known how long the contagion of the Rinderpest remained effectual. For his part, he thought it dangerous to lessen the duration of the twenty-one days' quarantine before the propagating power of the virus was more accurately ascertained.

Mr. *Undritz* (Petersburg) communicated the fact, that in Russia cases had been known of cattle (meant for fattening) from the Steppes having transferred the disease after months, and without becoming ill themselves. He was, however, unable to fix any period for the duration of the contagious power. The disease spread oftener when apparently healthy cattle from the Steppes associated with the home herds. He was, nevertheless, of opinion that no harm could be done by shortening the quarantine period, as the term of incubation generally lasted from three to four days.

President *Hering* remarked that in these cases the animals had merely been the carriers of the contagion (as has been the case with wool, skins, &c.); which was of importance, as, were the quarantine period to be regulated according to these and similar accounts, its duration might be endless.

Professor *Gerlach*, of Hanover, said that he confessed he owed his knowledge of this contagious typhus of cattle to reading upon the question; yet he considered it would be dangerous to shorten the present period of quarantine. A few years ago cattle were much wanted in Prussia; it was therefore proposed to facilitate the means of cattle-transport over the eastern frontier. Public opinion, however, had inclined towards maintaining the twenty-one days of quarantine. Experience had justified this proceeding, for, more fortunate than Austria, Prussia had not been visited by the Plague. He could not, therefore, vote in favour of an abridgment of the existing quarantine.

Professor *Röll* believed that the frontier was fully as well watched and guarded by the quarantine in Austria as it was in Prussia; but that the former ran far more danger through the cattle-trade than the latter nation did, inasmuch as it was in direct communication with the primary sources of the contagion. Such was not the case with Prussia, as the cattle which arrived at Oderberg had already enjoyed the advantage of the Austrian quarantine, and had besides passed through Austria. Austria, on the other hand, received yearly, from Bessarabia and the Ukraine, 90,000 head of cattle, one-half of which was smuggled over in defiance of the quarantine regulations.

Professor *Undritz* corroborated the statement that so-called "drove-cattle" never arrived in Prussia.

Mr. *Kühne*, of Berlin, declared that the cattle-trade between Russia and Prussia was solely prevented by the strict enforcement of the quarantine regulations on the Prussian frontier.

Professor *Gerlach* remarked, that murrain had often found its way into Poland; and that it was entirely owing to the existence of the twenty-one days of quarantine, and its strict observance, that the plague had not penetrated further into Prussia.

Professor *Haubner* was convinced that it would be impossible to draw constantly a strong barrier between East and West Europe. From east to west was the common current of trade. The West will always be compelled to recruit its constantly decreasing stock from the East; therefore the measures to be taken towards the extirpation of the evil in question should not be rendered more burdensome than the disease itself, for fear of a general falling-off in the trade.

President *Hering* could not but recognize in the home-breeding of stock the best means of resisting plagues which are introduced from foreign countries; therefore home breeding should be encouraged to the utmost.

Professor *Gerlach* acknowledged that, through the strictness of the measures adopted on the Prussian frontier, or to the complete cordon drawn, not only had infectious diseases been shut out, but the almost total cessation of cattle importation over the last frontier had also compelled Prussia to breed more and superior cattle; the frontier cordon may be therefore regarded as having been a cause of a higher breed of cattle in the kingdom. The introduction of the disease into Prussia would ruin the nation's breed of cattle, and render a constant import from Russia compulsory.

Professor *Zangger* deprecated such opinions, and warned them against believing the cordon to be a means of improving cattle-breeding: he held it to be a dangerous principle, and totally inconsistent with the existing means of transport.

Professor *Müller* (Vienna), was firmly convinced that the cordon-system had outlived itself,—that it was entirely useless. To keep a perpetual watch over the cattle-roads of Russia would be as impossible as would be also a constant and unremitting guard line on the frontier. He was of opinion that institutions which have been rejected by experience can hardly be defended by science; an absolutely strictly drawn cordon against contagious diseases on the frontiers of states was, in these days, an impossibility. Strict cordons had been but lately drawn against contagious human diseases, and sentries had been placed for that purpose at intervals of fifty paces from each other; yet even this plan had to be relinquished, as it was found that wherever any profit could be made by thwarting these measures, they were as constantly thwarted. Science could do no more than recommend the sanitary cordons to be carried out to a reasonable degree, without pressing more upon the interests of trade than was absolutely necessary.

Professor *Haubner* wished to continue the debate upon the subject of contagion-spreading substances, such as wool, skins, &c., but upon the expressed wish of the assembly, the sitting was closed by the President.

SECOND SITTING.—15TH JULY.

A number of veterinary surgeons who had not attended the previous day's sitting were, according to their desire, enrolled as members of the Congress. After which

President *Hering* opened the sitting by recapitulating the salient points of the preceding meeting, and invited the assembly to a renewal of yesterday's debate upon the measures to be taken in order to check the progress of Rinderpest.

Professor *Röll* next explained the reasons for the apparently unequal ravages caused by the Cattle Plague in the different provinces of the Austrian Empire: how in Hungary the Steppes cattle suffered comparatively little, whereas in Galicia notice of the prevailing disease was generally given too late, and, therefore, greater losses were sustained.

Professor *Haubner* remarked that the principal question at present before the meeting was to decide concerning Dr. Röll's former motion, viz., "Whether it be desirable to shorten the quarantine term of detention from twenty-one to ten days?" a motion in which he, Dr. Haubner, entirely concurred.

Professor *Unterberger*, Senr. (Dorpat), quite agreed with the opinions expressed by Drs. Röll and Haubner. He cited experiments which were made in Russia on the grandest scale, and which gave as an exact result that the incubation period of the Cattle Plague was generally from *three* to *four* days, in exceptional cases reaching six. It was his opinion, therefore, that the quarantine might, without any danger, be reduced to ten days; a measure which he was also convinced would greatly diminish the present smuggling system that contributed so much towards the propagation of the disease.

Professor *Fuchs* maintained a contrary opinion, and held the shortening of the quarantine to be a dangerous measure; he wished the quarantine places to be subjected to the strictest inspection, and considered the cleansing of the cattle by washing to be as necessary on the day of their entry as on that of their leaving the quarantine depôt. The same cleansing process should be repeated on all the other animals on the day of the death of one of their number. He added, that he should wish the frontier to be completely closed whenever the Cattle Plague was known to exist in a neighbouring country.

Professor *Röll* would make a difference, in such a case, between cattle intended for immediate slaughter and others: only the former should be permitted to cross the frontier.

Professor *Hertwig* (Berlin), declared the Cattle Plague to be a question of still greater moment to Prussia than to Austria. The latter country having only to apprehend danger from the East, whereas the former had to defend also its southern frontier from the invasion of the contagious disease. The accounts from Poland concerning the ravages of the Cattle Plague in that country were always unreliable and vague, and for this reason alone he held that the strictest enforcement of all regulations concerning the transport of cattle across the east frontier of the kingdom was highly necessary. The laws allowed, it was true, when the neighbouring country was known to be free from contagion, a greater facility of mutual commercial intercourse; but when the Cattle Plague had once broken out, then he would guard against any trade in cattle or in contagion-spreading substances. Prussia had been free from the Plague since the introduction of the twenty-one days' quarantine, although Bohemia and Moravia had suffered from the visits of the unwelcome pest. According to the experiments of Tode in Copenhagen, cases had occurred in which the duration of incubation was not less than twenty-eight days; he, therefore, could not vote for the shortening of the twenty-one days' quarantine. He could not hope that the smuggling trade would be considerably diminished by the proposed measure; he was of opinion that that trade would still be carried on: he would only point to the meat-excise, which offered so little prospects of gain and so great a chance of punishment, and yet frauds were of frequent occurrence. Finally, he must also corroborate the statement already made, that the strict preventive measures on the frontier, and the difficulties opposed to the introduction of cattle across the eastern frontier, had materially tended to improve the breed of cattle in Prussia, and especially to improve stall-feeding. It was an open question whether the railway traffic of Prussia required a change in its laws concerning the Cattle Disease.

Professor *Haubner* prognosticated danger not only for Austria, Prussia, and Saxony, but also for the western states: this danger consisted in the railway traffic. The strictest cordon regulations were, by this means, rendered fruitless. The transport of cattle occupied so short a space of time over such a great expanse of territory, that the question should no longer be, What is to be done to avoid a danger which threatens us from a distance of some eight or twelve (German) miles? but What measures are in the main to be taken against the danger which now threatens all states in common?

Professor *Unterberger*, Sen., remarked that the Cattle Plague had already, within seven years, twice raged in Prussia, in spite of the twenty-one days of quarantine, and that to the railways was to be attributed its diffusion; he considered it his duty to speak again in favour of a ten days' quarantine; he had already given his reasons for coming to this decision, and they were the fruits of long experience.

Professor *Hertwig* admitted the accuracy of the facts just cited, but reminded them that the Plague was soon mastered. The cattle trade between Russia and Prussia was not of great dimensions, but still Poland was a dangerous neighbour. It was well known that the Russian troops were followed by their cattle droves, and thus the introduction of the contagion was easily explained; for similar reasons he wished the cattle transport by railway to be placed under very strict supervision.

Professor *Zangger* wished the question to be restricted within narrow limits, viz.:—on the duration of the incubation period; he desired also to be furnished with scientific proof, Whether this period lasts six or seven days, or longer?

President *Hering* requested that a decision be arrived at, "Whether, upon scientific grounds, a quarantine period of ten days' duration may be regarded as a sufficient one for the purpose it is intended to fulfil?"

Professor *Gerlach*, however, moved that the assembly declare by vote:—"Whether the experience gained in the matter up to this day can be considered sufficient to warrant a decision in favour of a shortening of the quarantine hitherto observed from twenty-one to ten days?"

Professor *Unterberger*, Sen., protested against such an amendment and opined that, although the first experiments made upon the duration of the Cattle Plague contagion were deemed sufficiently satisfactory to fix the period of quarantine at twenty-one days, yet it must be recollected that these experiments were made towards the middle of the last century, when science and the means of eliciting the necessary information were at a much lower ebb than at present. The experiments made under the most favourable circumstances by Brauell, Jessen, and others, were certainly deserving of the most serious attention. The latest experiments gave the positive result that, generally speaking, the period of incubation in cases of common infection lasted from four to five days; through inoculation from three to four, and in very rare cases six days: one exceptional observation (which to the extent of his knowledge, had only been twice made), stated that the Cattle Plague only broke out on the ninth day. Without professing to have any instructions from his Government to recommend an abridgment of the quarantine, he would give his unqualified support to Dr. Röll's motion; repeating that his conviction of its truth and usefulness were founded both upon science and personal experience. How far inoculation could be used as a preservative against the Cattle Plague of the Steppes was a question which could not then be replied to with certainty; one fact had, however, been ascertained, viz., that inoculation by means of mitigated virus had achieved most favourable results, losses amounting only from 3 to 4 per cent. having resulted, and the inoculated resisting the contagion to which they had afterwards been exposed. He informed the meeting that Staatsrath Jessen, Professor in the Veterinary College of Dorpat, was then, by order of his Government, in the Russian Steppes, for the purpose of carrying out experiments regarding the inoculation of the Cattle Disease on the largest scale.

Dr. *Haubner* could but repeat that they must be guided by the general rule, and not by exceptional cases; for if undue attention were given to the latter, the discussion would be endless: if therefore three to five days was proved to be, as a general rule, the period of incubation, then those cases in which it extends over twenty-eight days must not be regarded. He was of opinion that the question of quarantine duration should not be decided by vote, as the result of such a proceeding would never be a definite one, there being many of his colleagues present who, from want of personal observation and experience, would decline to vote.

Dr. *Leisering* (Dresden), was also of opinion that only such members should vote on the question, whose opinions were guided by personal experience.

Professor *Nicklas* (Munich), took the same view.

Professor *Zangger* thought that, although all the members present might not have had the opportunity of personally observing the Cattle Plague in its different phases, yet surely all possessed a certain knowledge of it from reading, and, in the course of these proceedings, might be enabled to arrive at a fixed opinion on the subject. He had convinced himself that a ten days' quarantine would suffice, but a contrary opinion had been expressed; so that everything in the struggle for a good cause should not be lost, he would not therefore insist upon those ten days, but would make the conciliatory proposal, that the president do lay before the meeting the following two questions: 1st. "Do the experiments made and the knowledge hitherto arrived at suffice to prove that the period of incubation of the Cattle Plague does not exceed nine days?" and, should this be answered in the affirmative: 2nd. "Accepting this therefore as proved, can the twenty-one days' quarantine, as it at present exists towards the prevention and introduction of the Cattle Plague, be shortened?"

On the proposers of the former motions having agreed to this mode of putting the question,

President *Hering* submitted the two questions to the Assembly, when both were by a majority of votes answered in the affirmative. In the majority were MM. Röll, Müller, Pillwax, Unterberger, Sen. and Jun., Gamgee, Haubner, and Hering; in the minority, MM. Hertwig, Kühne, Fuchs, Leisering, Gerlach, and Fürstenberg.

Dr. *Röll* re-introduced the subject mooted by Dr. Haubner on the previous day: as to Whether the meeting be inclined to take into consideration the so-called infection-spreading substances, such as wool, skins, &c. As also animals, which, during the existence of the Cattle Plague, may propagate the contagion?

This being agreed to:

Professor *Unterberger*, Sen., informed the meeting that on this subject experiments had been made in Russia in 1853. The skin of an animal which had died of the disease had been divided into halves: the one half, in raw condition, had been placed upon a healthy beast, which immediately caught the contagion; the remaining half was exposed in a Russian vapour-bath to a temperature of 40° R., and the animal which it afterwards covered remained in good health.

Professor *Hertwig* considered it highly important to ascertain how long the Cattle Plague contagion communicated its infectious power to substances exposed to the open air, and how long to substances in a packed-up condition. He held its tenacity to be very great indeed. The dung of diseased animals, even after it had lain in a frozen state during four weeks, was known to have transmitted infection; and, according to Abildgaard and Kausch, it was stated as a fact that the contagion spread its infectious power from a distance of 200 paces.

Professor *Unterberger*, Sen., found that bodies of animals which had died of the Plague, and which had been buried close to the surface, but had been covered with chloride of lime, could not spread the disease after six weeks.

Dr. *Haubner* defined the measures against the Cattle Plague to be such as were taken more especially against animals themselves in infected districts, and in such as were directed against infection-spreading substances, as wool, skins, tallow, &c., and drew a great difference among the latter, between such as belong to the retail trade and those that belong to the wholesale trade. Regulations concerning the latter he held to be of particular importance. Enquiries should also be set on foot to ascertain whether fodder, dung, &c., might contain infection and whether sheep, swine, and other animals, were susceptible of spreading infection. Thus hay, which had been kept in a loft situated above infected stables, and had been only used as fodder after a lapse of four months, had communicated the infection; the dung of animals suffering from the disease, notwithstanding that it had been brought out in Autumn and been frozen throughout winter, yet communicated the contagion on the following spring. Trade naturally transported the above-mentioned articles to great distances, and naturally sought for itself the easiest routes, without fearing to select often very circuitous ones. The difference alone of the regulations in various states rendered this possible. As an example, he said that as Bavaria had forbidden the import of swine upon her east frontier, the dealers brought these animals by Bodenbach to Saxony, against which there was no obstacle; so that Bavaria received these self-same swine from Saxony: as with swine, such was the case with other animals, and also with skins.

Dr. *Röll* did not believe that the Cattle Plague contagion was often communicated by swine, as these animals rarely came into contact with cattle. Washing was quite sufficient to disinfect them, and this always takes place on the frontier. It was very different with sheep. Dr. Maresch had observed that they were liable to catch the Cattle Plague itself; this observation had been also made in Hungary, and by Jessen in Dorpat. On the coast-land (Dalmatia, Friaul, Carinthia) disease had broken out amongst sheep in places where the Cattle Plague prevailed at the time, and especially in such places where sheep and cattle shared the same stables. In three different places in Carinthia healthy sheep had been infected by diseased ones, and through the latter the murrain itself had been re-communicated to cattle. The diseased sheep had stood in a stable, only separated by boards from one in which diseased cattle had been placed. The symptoms of the disease in sheep were perfectly similar to those in cattle; only the breathing was attended with difficulty: dissection gave also the same result as with cattle, but included also lobular pneumonia. Dr. Röll held the sheep disease to be identical with the Cattle Plague. Experiments had been made on the spot, but their result was unknown to him; still he was convinced that the propagation of the Cattle Disease by means of sheep and goats had been hitherto overlooked. This fact was also not so new as it may seem, for much earlier disease had broken out among sheep in places where, and at times in which, the Cattle Plague had been prevalent. It was, however, quite clear that in such cases the most stringent regulations with regard to sheep should be enforced.

Dr. *Haubner* remarked that when, in 1831, the cholera was nearing us, and while Cattle Plague was raging in Russia and Poland, it was often said that sheep had caught the cholera, though he held that their complaint was typhoid dysentery.

Dr. *Müller* could not agree with Professor Hertwig's opinion that the Cattle Plague spread its contagion to a distance of two hundred paces; according to his own opinion, the contagion was the least of all spread by the atmosphere, for how could it otherwise be possible for separate houses standing in the midst of infected districts to escape from the introduction of the disease, as had been often the case. The contagion must therefore adhere to tangible substances and be spread by their medium.

Dr. *Haubner* proposed that those states most directly interested should adopt common regulations as regards certain articles, bearing in mind, however, that the wholesale trade in wool would not bear any great restrictions, and that therefore the latter should be limited as far as possible without incurring positive danger. As an instance of trade on a grand scale, Dr.

Haubner informed them that 80 cwt. of casks, sent from Pesth to Hamburg had passed to Dresden, where they were filled with butter and exported to the East Indies.

Professor *Hertwig* wished that, in states where circumstances were so much in favour of experiments, as for example in Russia, many should be made in order to achieve results so important to mankind and to commerce.

Professor *Müller* entirely concurred with the preceding speaker; he also wished experiments to be made; but he also wished, when experiments were made, they should be well conducted, as they had been and were still in Russia—that their results should not meet with incredulity, and that it should not be deemed necessary to repeat them.

Professor *Gerlach* acknowledged gratefully the debt of gratitude due to Russia for her exertions in this matter, but believed that doubts must be allowed so long as the positive truth had not been arrived at, and that it was unnecessary, through mere gratitude, to alter an already formed opinion.

Dr. *Haubner* feared experiments such as those which he himself recommended, viz., touching the wholesale trade, could not be carried out.

Professor *Hering* closed the debate, remarking that the discussion had not been sufficiently productive of positive and accurate information upon which to found fixed resolutions, he however suggested:—"That it is most desirable that further experiments be made concerning the propagation of the Cattle Plague contagion by means of substances such as wool, skins, or by means of animals other than horned cattle."

This proposal was moved and seconded by MM. *Unterberger*, *Müller*, &c., and met with the approval of the meeting.

President *Hering* hereupon adjourned the proceedings until Thursday.

THIRD SITTING, 16TH JULY.

President *Hering* instructed the Secretary to read the debates of the two first sittings, and upon his doing so, invited the Congress to commence the debate on the subject of Pleuro-pneumonia, assuming meanwhile that it would be foreign to their purpose to enter into arguments as to the cause and the nature of this disease; the primary object being to endeavour, by discussion, to ascertain which were the best measures to be adopted for its restriction and extirpation.

Professor *Gamgee* (Edinburgh) then rose and delivered the following address on the subject of Pleuro-pneumonia:—

It is my duty to state in a few words my reasons for asking the learned amongst the members of my profession to meet here and discuss questions of vital importance to the various European nations between which there is an increasing traffic in live stock. It must be evident to all, that as there are vast regions in Europe where domestic animals are naturally exempt from destructive plagues, it should be the interest of every people, and of every Government, to confine such plagues within their normal limits of spontaneous development. Too much praise cannot be awarded to Professor Jessen and Professor Unterberger of Dorpat, and to the Russian Government, for striving to export only such animals as have passed through the attack of the Rinderpest, and cannot aid in propagating so frightful a malady; but it is evident that with reference to Pleuro-pneumonia, Sheep-pox, Foot-and-Mouth Disease, Scabies, and other contagious disorders, there is the same recklessness in the traffic between different countries as there is too often between dealers and farmers in each country. So far as Great Britain is concerned, we have a more extensive traffic in diseased animals than in any other part of Europe I have yet visited. Foreign traders think that anything will sell in the London market, and British farmers and butchers believe that the stomachs and constitutions of the inhabitants of that metropolis are proof against the most active animal poisons. When I tell my hearers in Hamburg, that an animal dying from anthrax, whose entrails readily kill pigs, dogs, or other creatures partaking of them, is sent to our city markets as readily as a healthy one, I can furnish no more striking illustration of the condition of the British meat trade. The British Islands must throughout all time supply the Continent with store animals for the improvement of breeds; and it is well known that purchases for this purpose have led to the transmission of contagious disease to many parts of the Continent.

All Europe has an interest in the purity of British stock. But that Great Britain can afford to be active in preventing epizootic diseases, and must suffer if it is not, can easily be proved. Reliable statistics as to the amount of live stock in Great Britain are wanting, and no official returns have ever been obtained in the United Kingdom as to the losses sustained by diseases amongst our domestic animals:—

In 1854 it was estimated that in England and Wales the number of cattle amounted to	3,422,165
Scotland (latest statistics, 1857)	974,437
Ireland (statistics for 1862)	3,250,396
Total horned cattle in the United Kingdom ..	7,646,998

The nearest approximation I can give of the value of this stock is 10*l.* per head. The stock lost is always the best, and, according to insurance statistics, amounts on the average to 11*l.* 10*s.* The number and value of horned cattle thus accepted is, in my opinion, decidedly below rather than above reality. The statistical information as to losses on the above stock is derived from personal experience, and from unpublished insurance statistics which can be thoroughly relied on, supported, as they are, in a very significant manner by the history of live stock insurance offices since their origin in 1844. Prior to 1842, the average mortality amongst our cattle could not be estimated at more than 1½ to 2½ per cent., but rumours then spread as to cattle plagues abroad. Reports of terrific losses reached this country, and the warning was followed by the introduction of Epizootic Aphtha and Pleuro-pneumonia. The first was called the "epidemic," and the second the "new disease," the chief difference between the two being that the epidemic deteriorated stock, whereas the new disease destroyed it. Inquiries were set on foot as to how the calamity should be met. Insurance societies had been established abroad, and similar associations were then considered indispensable here. This need, be it observed, was only felt after our ports were opened to foreign animals. Then inquirers proceeded abroad to learn the working of such companies; returns were obtained from all sources; and it was estimated that between two and three per cent. would cover the heaviest losses ever sustained throughout a country.

In 1844 the first English insurance society was established. It bore the name of "The Farmers' and Graziers' Mutual Cattle Insurance Company." Its patrons were wealthy and influential; its members were soon very numerous; the insurances effected attained vast proportions, and under the most favourable conditions, as many people were then more alarmed by continental reports than injured by disease at home. Pleuro-pneumonia, however, cleared out stock after stock and herd after herd in an incredibly short space of time. The company repeatedly raised its rates of premium. Disease, however, continued, and the affairs of this first mutual society became hopelessly embarrassed. Its books were closed four or five years after it was first established, and many have not received to this day heavy sums in compensation for losses amongst insured stock. The apparent early success of the above company led in 1845 to the organisation of "The United Kingdom Mutual Cattle Insurance Company." Its business was good, but the same disasters naturally befel it as the sister company, and it was obliged to yield under the pressure of enormous liabilities it had incurred and could not meet. In England and Scotland alone two millions' worth of live stock were insured in the first two years of the existence of the before-mentioned companies. There was an unlimited amount of business to do, but the larger the transactions the sooner could it be perceived that persistence implied ruin. As mutual associations could not succeed, enterprising individuals resolved to obtain more correct information as to the real mortality amongst cattle; and to have a large reserve fund to meet any emergency that might arise. Accordingly, in 1845 was published the prospectus of "The Agricultural Cattle Insurance Company," which was to be a proprietary association, with a capital of 500,000*l*. Expectations were as high on the part of the public as amongst the shareholders. The large capital, the absence of all copartnery risks, the still moderate rates of premium, and the alarming losses by disease, led to a very active trade. The business attained truly enormous proportions, and insurances were effected at the rate of 300,000*l*. weekly for a considerable length of time. At the completion of the third year of this society's existence, ten millions sterling was the value of stock insured by it. No other provident institution in the world ever had such a business. But cattle were dying. The hurricane which swept away the earlier companies did irreparable damage to the new one. The annual report for 1848 says, referring to the Lung-disease in cattle, 'that in some districts thousands were carried off; so great, indeed, were its ravages, that nearly three-fourths of the losses for which claims were made upon the company were the results of that incurable disease.' The shareholders were summoned to meetings; call after call succeeded at short intervals; the rates of premium were raised; and the confidence of the public began to be shaken. All claims, however, were met; business again increased; but disease did not abate. The losses incurred during the first years could never be made up; and, struggling on under great difficulties, this, the greatest Cattle Insurance Company that had ever existed, held out for seventeen years, but was compelled to wind up its affairs in 1861. Nor was this all. During the period of the apparent successes of the Company, other associations of the same character had been established. In 1846 'The Scottish Agricultural Cattle Insurance Company;' in 1851 'The Essex Cattle Insurance Company,' 'The Bury Local Society,' 'The Bouldsworth Cattle Insurance Association,' and 'The Ecclestone Insurance Company.' And these companies, one by one, had joined the 'Agriculturist,' so that when it ceased to exist it was not one, but six companies in one, which were annihilated entirely in consequence of the continuance of a frightful mortality amongst cattle. It deserves notice that several times in the history of the 'Agriculturist' Company, its Irish Business was given up on account of the especially heavy losses which it entailed. It is an instructive fact that insurance offices, after having calculated that their utmost possible losses would be coverable by a premium of $3\frac{1}{7}$ per cent., eventually exacted premiums of more than double that amount, and yet within a few years came to ruin. No better proof can be given that the statements I have now to make are justified by the facts.

Very startling results are obtained by calculating the losses this country has sustained since the importation of cattle and of contagious diseases. The most recent statistics of mortality to be relied upon are those of Scotland for the year 1860, which, on taking the average amongst stock of all kinds, amount to 4·89, or very nearly five per cent. If in 1860 the whole of the United Kingdom had (as I believe it at least to have had) the same rate of mortality as Scotland, in that year there died of disease, in 1860, in Great Britain and Ireland, 374,048 horned cattle, having, at the average value of 10*l.* 3*s.* 6*d.* per head, a total money value of 3,805,939*l.* 8*s.*; and if the Mid-Lothian experience of the causes of death be applied to this matter, we may infer that more than half the loss was due to Pleuro-pneumonia. The number of cattle imported in 1860 was 104,569, and their value (at 8*l.* per head) may be estimated at 836,552*l.* It will thus be seen that the number of cattle estimated to have died by disease was 3·57 times the number imported in the year, and that the estimated deaths from Pleuro-pneumonia were more than 1·89 times the number of cattle imported. Taking the estimated values, we find that the entire deaths from disease represented 4·5 times the value of the cattle imported, and that the deaths from Pleuro-pneumonia represented considerably above twice the value of these imports.

As one year cannot be considered a sufficiently fair estimate, we may give the calculations for the six years ending 1860. The average annual loss of cattle during this period has been estimated at 4·915, or over the whole stock of the three kingdoms to be 375,850. The estimated total for six years amounted to 2,255,100. The value of animals lost amounted, at 11*l.* 10*s.* per head, to a grand total of 25,934,650*l.* Of this number there died from Pleuro-pneumonia considerably above one million during the six years, and these represented a value of about twelve millions sterling. The number of cattle imported during the six years ending 1860 was 553,033; their estimated value at 8*l.* per head, 4,424,264*l.* The loss by disease was four times the number of cattle imported, and by Pleuro-pneumonia it exceeded twice that number. On estimating their values, we find that the value of cattle lost was 5·89 times the value of the importation, and more than half that loss due to Pleuro-pneumonia.

The sheep of the United Kingdom have been estimated * at about 40,000,000, and are worth at least as many pounds sterling. Their average mortality by disease is not less than four per cent. It attains five per cent. in Ireland, and exceeds this in Scotland. The money value represented by the deaths over the whole kingdom is therefore not less than 1,600,000*l.* There are, moreover, about 4,298,141 pigs, which may also be valued at 1*l.* per head, though usually considered as worth considerably more. In Ireland there is a loss at least of 10 per cent. on these animals. In Scotland the loss is small, and the mortality is not very great amongst them in England as compared with Ireland. I cannot, however, calculate it at less than three per cent. over the three kingdoms. This would give a loss in round numbers of 1,209,000*l.* sterling. Thus the deaths among stock in the United Kingdom probably represent an annual amount of more than six millions sterling. In large towns the mortality of cows very greatly exceeds any proportion which I have stated.

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* By Mr. Robert Herbert.

I fear that I have detained you too long with these statistics, but I expect you will not consider that I have been in error during the last eight or ten years, if I have constantly drawn attention at home to the injury inflicted on the British people by the foreign trade. I do not want to abolish that trade—I wish to encourage it; but it is certain that in the course of time the trade must stop if the British Government, working hand in hand with foreign rulers, does not attend to the health of stock bred, bought, and sold, at home and abroad. We should have great uniformity in the laws relating to the diseases of animals in different countries, and it should be regarded as a punishable offence in any country for a man to sell or buy from a diseased stock for exportation. I do not wish to detain you further at present, and hope that this our first conference may be the advent of many happy and useful meetings, and that by our continued exertions we may demonstrate the great importance of our noble profession, and show that in relation to the preservation of man's health, and the advancement of man's prosperity, we have public duties to perform which can alone be safely intrusted to us by the princes and people of each and every nation in the civilised world.

Professor *Niklas*, in alluding to the propagation of Pleuro-pneumonia, held this disease to be as great a scourge to the west and middle of Europe, as the Cattle Plague was to the east. Competent judges were by no means unanimous as to the character and origin of this disease, for whereas some held it to be a mere contagious one, others were of opinion that it displayed itself often without any discernible cause. He himself decidedly believed the malady to be a contagious one, and could not believe in the theory of its spontaneous growth. Many different measures had been had recourse to for the prevention and extirpation of Pleuro-pneumonia, several of which had given beneficial results; still, no entirely satisfactory result had been attained save by the employment of several of these measures at one time. He wished, first of all, that Pleuro-pneumonia should be enrolled among the defects for which sold cattle should be returned to their vendors, and during forty days, as in Bavaria. The disease had lost ground in the latter country; he would only cite, for example, Munich, where for every hundred cases which occurred formerly in the slaughter-houses, last year he could only count one. This decrease in the mortality was a consequence of the disease being placed amongst those affected by warranty, and thus do we find one certain measure towards its prevention. Authoritative measures were also imperatively necessary, but the owner of a beast slaughtered by command of the authorities should not be a loser by this measure, but should receive its full value. This could be most easily accomplished by new Cattle Insurance Companies. Another measure which he most strongly advocated, consisted in inoculation, however that opinion may be combated. The means of prevention referred to he held to be of so valuable a nature, that were they universally adopted he would hope to see the total extirpation of the disease.

Professor *Fuchs* of Heidelberg wished to know *whether*—and if not—*why*, in England, no measures had been taken against Pleuro-pneumonia, if, according to Professor Gamgee's account that country suffered so much from disease?

Professor *Gamgee* replied, that hitherto no preventive measures had been taken; which could only be explained by the prevailing tendency in his country to permit every man to take care of himself and his property. Diseased animals were slaughtered and sold as food, although several cases of illness had been remarked, caused by the consumption of the meat of such animals. He believed that a mastery over the disease was attainable by means of fixed regulations and laws, but inoculation alone, was, in his opinion, quite insufficient to arrest the progress of the disease.

Professor *Fuchs* enquired whether in Bavaria Pleuro-pneumonia was by law or not unguaranteed; or, in other words, if the government did not grant an indemnity for cattle slaughtered for this disease?

Professor *Niklas* answered that the disease in question was by law unguaranteed; nevertheless, it was possible by mutual consent or agreement to escape the responsibility. He was also of opinion that all infectious diseases should be unguaranteed by law, so that it would be impossible to escape the penalty incurred.

President *Hering* informed the meeting, that in Würtemberg, according to the new law of 26th Dec., 1861, warranty (or security of possession), a written private agreement, quite sufficed to free the holder from the consequence of the want of general security by law.

Professor *Gerlach* expressed similar opinions.

Mr. *Wüth* assured the Meeting that measures had been taken in the Grand Duchy of Hesse for many years past to combat the disease under consideration; and the plan suggested by Professor Niklas, viz. that of placing the disease under the law of warranty, was carefully looked into. It was however relinquished, and he thought quite rightly, as laws can only produce restrictions, which are most unfavourable to trade; a similar law would be difficult to put into practice, and an accurate control over it would be next to impossible. The theory of the axe was then had recourse to, and a law was promulgated, according to which, in cases of Pleuro-pneumonia, the animal was to be slaughtered; the owner, however, was to be reimbursed out of the State-Treasury. This measure, in its turn, did not hold good, for the expenses incurred thereby rose to such a height, that in the second year of its existence the law was abolished. Inoculation was in constant use, and its good effects must be allowed, although its accomplishment was often attended with difficulty.

Mr. *Marcus* stated, that Pleuro-pneumonia never commenced of itself in Mecklenburg, but had always been introduced by diseased foreign cattle. Here again the axe was the principal means of combating the plague; and, indeed, not only were the diseased animals put to death, but also all others which may have been brought into contact with them, for which however the proprietor received the full value. The expenses of this mode of proceeding were covered by a tax upon the proprietors of stock; and the latter were the more reconciled to the system as they had convinced themselves that the Lung Disease was by its means always rapidly and effectually suppressed. A similar measure would, however, be a dangerous one, if a sanitary cordon were not strictly drawn between the country and that in which Pleuro-pneumonia is known to exist.

Mr. *Schmelz* declared that, taking into consideration the long duration of the incubation of Lung Disease, the axe could only be employed as a means of extirpation when the losses of proprietors of stock were at the same time reimbursed; besides, this should not be regarded as the sole method of destroying the evil, as Pleuro-pneumonia could in many cases be cured.

Professor *Gerlach* drew attention to the fact that the prevalence of the Lung Disease was for the most part attributable to the cattle trade. Owing to the lengthened period of incubation natural to this disease, its contagion may be spread before outward symptoms are visible; animals similarly infected are, however, through that very fact, the most dangerous to the trade. Under existing circumstances, it no longer suffices when two or three separate States act together; the question had become one of international interest, and required the common and energetic attention of all States. He concurred in the plans proposed by Dr. Niklas, and remarked that where the common Roman law was in action, the Lung Disease was *eo ipso* warranted, and should be reckoned as such in States where that law did not exist, although he was far from ascribing to it the value which had been placed on it that day. Although the sale of diseased animals was already forbidden by police regulations, animals were nevertheless constantly sold when under the influence of the disease; because, as had been already remarked, a long time often elapsed before the symptoms of the malady became apparent. The axe was, it is true, a radical—but also a barbarous—cure, and could only be employed in countries over which Pleuro-pneumonia had not universally spread itself; in the contrary case, such a measure would not be feasible. It was true that the inspection of cattle-markets and of infected places, veterinary inspection of meat, &c., contributed greatly towards stopping the progress and propagation of the disease in question; but the measure to which he would attach the most importance, would be a law prohibiting the sale of animals coming from infected droves within the space of one year; still better would it be, if even then, such animals were only brought to the slaughter-houses. He recognised in this method the only chance of obtaining a mastery over the disease.

Professor *Niklas* refuted the doubts expressed by the preceding speaker by repeating the facts already alleged (in Munich); he declared, however, that he considered the attempt to cure animals affected with Pleuro-pneumonia to be the more dangerous, as, often, animals considered perfectly cured were apt to communicate the contagion. He did not wish to apply the axe to healthy animals, but only to dangerous and suspicious ones; besides, he was for immediate inoculation, and there was no want of proof to support the validity of his opinions.

Mr. *Undritz* enquired where Pleuro-pneumonia first originated, as it was declared by all to be a contagion.

Professor *Zangger* stated that Switzerland had been formerly looked upon as the source of the Lung Disease, but with injustice; the reason of the accusation was doubtless because the veterinary surgeons of that country had first complained of and written about the disease. Pleuro-pneumonia had already in the 16th, 17th, and 18th centuries committed great ravages. In those times the clergy were applied to for assistance, and public prayers were ordered for deliverance from the Plague. The disease only appeared at the present day in isolated cases; it had been got under. He could not, therefore, do better than describe the measures which had, in Switzerland, effected so favourable a result. The axe was remorselessly used in the canton Zürich, and to such an extent that, whenever a suspicious beast was remarked in a stable or a pasture, the one with the worst symptoms was killed. If, on dissection, Pleuro-pneumonia was evident, then the whole stable or pasture was closed, and the remaining animals were slaughtered in succession. The meat, with the exception of that belonging to animals brought down very low by the complaint, served for human food, and had hitherto given no cause for complaint. The slaughtering was meanwhile coupled with reimbursement. Generally, the full value of the killed animals was returned to the owner; but in some cases the fortunes of the owners were taken into consideration, so that the wealthy owner did not always receive the full value of his sacrificed cattle. This indemnification was taken from a fund founded from the proceeds of an institution called the "Vieh Controle," or inspection of live stock. The appearance of Lung Disease in the last century led to every district and village appointing an inspector of stock (Viehschauer), whose duty it was to furnish every animal exposed for sale with a certificate of health, as a proof that no disease existed in the place or village from whence it came. Should the latter, however, be the case (of which the inspector must at once be apprized), then no more certificates could be granted, the cattle trade was suspended, and only in extraordinary cases was permission given to send the animals to the slaughter-house. Of the price paid for these certificates, 20 rappen or centimes (2*d.*), the administration claimed one half, and the remainder not only sufficed to cover the loss sustained, but had reached such a surplus that a fund sprang into existence which from its interest alone, added to the price of the certificates, supported the Veterinary College in Zürich. The measures here cited brought about a concordat law between several of the Swiss Cantons, and its result could but be termed brilliant, as the Lung Disease had almost disappeared from these Cantons, or, if it ever made its appearance, it was at once overpowered. He did not hold it absolutely necessary that the Lung Disease should be classed among the diseases affectedly warranted, for, wherever police inspection existed trade with infected cattle was prohibited, and must be; furthermore, the period over which the warranty extended would require to be indefinitely prolonged, and the seller would run the risk of great loss by his cattle becoming infected. The axe had been eminently successful in Switzerland; but he admitted that in other cases and other circumstances its use might not succeed so well. Upon the grounds already cited, he fully concurred in Gerlach's motion, viz.: "That it is the common interest of all States to prohibit the sale of cattle which had been seized with the Lung Disease."

Professor *Gerlach* spoke in favour of inoculation, as recommended by Niklas, and remarked that, although he had been formerly an opponent of this system, he had been convinced, upon trial, that the lymph obtained through the Lung-disease had a specific action. Although in isolated cases inoculation had produced but a doubtful result, still the number of successful cases was so great that he must decidedly recommend its employment; especially on such farms where, for various reasons—as, for example, in dairies—it is impossible to postpone the purchase of fresh animals; the inoculation of these latter lessened the duration of the disease, and prevented any future danger. He had himself, by means of inoculation, eradicated the disease on estates where it had existed permanently during twenty years. Slaughtering had been also attended with good effects, but he was inclined to ascribe particular value to the process of inoculation, and therefore, with reference to Niklas's remarks, ventured to propose the following as measures against Pleuro-pneumonia:—

1st. All animals seized with the disease should be slaughtered.

2ndly. All suspicious animals should be isolated.

3rdly. During the first year following the disappearance of the disease, live stock amongst which it had prevailed should only be sold to the butcher.

4thly. Within six months of the disappearance of the malady, all animals brought into the stables which it had visited should be inoculated.

In answer to Dr. *Fuchs*,

Professor *Gerlach* said that he included among the live stock alluded to under the third head all that belonged to an infected herd. That the expression "herd" comprehended such cattle as were brought into mutual contact in whatever manner; whether they occupied a common stable, or whether, occupying a hundred separate ones, they frequented common roads and watering-places. All animals that were either attacked themselves by the disease, or had, without previous inoculation, been brought into contact with such as were suffering from it, were to be ranked in the category specified, and he only excepted such as had been purchased in healthy condition and had been previously inoculated.

Mr. *May* maintained that the Lung Disease should be included among those diseases not guaranteed by law, and in support of this opinion, he cited one case in particular in which a pair of draught-oxen, suffering from Lung Disease, had propagated the infection throughout four different parishes, one of which alone lost one hundred head of cattle. Had the law in question been then in force, the first buyer who recognized the presence of the disease could have obtained reimbursement from the seller, and would not have been compelled, through fear of total loss, to re-sell the animals as quickly as possible.

Professor *Fuchs* stated the occurrence of a similar case in Nassau, which spoke also in favour of the proposed law, and gave also another reason to demonstrate its necessity. In Nassau all evidently infected animals had been slaughtered, and their owners indemnified; but it was soon discovered that the sums paid thus in indemnification increased every year, for infected cattle from neighbouring States were introduced into the country, and, as reimbursements were certain, their sale was attended with no difficulty.

Dr. *Müller* wished the debate limited to its original purpose, and that unnecessary details of separate cases should be avoided.

Dr. *Haubner* quite agreed with the measures proposed, but expressed doubts as to how the certain knowledge was to be acquired, that the animals alluded to had not been sold otherwise than to the butcher: and how (compulsory) inoculation and slaughtering could be simultaneously recommended.

Professor *Gerlach* explained that he meant only the really sick animals to be slaughtered, and that this measure was not to apply to the whole herd.

Dr. *Haubner* believed that even under a law forbidding the sale of such animals under a penalty of fifty thalers, the sale of a tolerably numerous drove would be attended with profit.

President *Hering* reminded the Congress that the seller, according to laws universally valid, remained responsible for any damage caused by him, either through negligence or intention.

Dr. *Haubner* recognised the full value of inoculation, but believed that its use could only be expected to produce perfectly satisfactory results if rendered compulsory, and that if this were effected then must also indemnification for animals thereby lost be simultaneously introduced; the introduction of compulsory inoculation he deemed however to be of great difficulty.

Professor *Gerlach* stated that a law was at present in existence in Hanover enjoining compulsory inoculation, and offering indemnification for the losses it might entail.

Professor *Hertwig* agreed with Haubner; he also was of opinion, that as inoculation was nothing else but an intentional infection, governments would be with difficulty persuaded into rendering it compulsory so long as other expedients existed. Although at that meeting and elsewhere favourable reports had been made concerning inoculation for the Lung Disease, yet there existed facts that spoke strongly to the contrary; he himself had witnessed by its means the destruction of whole herds, excepting a few head. There lay a contradiction in the assurance on the one hand, that the disease infected for a particular period, and on the other, that it was extirpated at once by means of inoculation; and it would be necessary to sift the evidence in the cases observed far more carefully. What had been said about the introduction of a law concerning the cattle-trade might be very true, if practical difficulties, with regard especially to the three months' duration of the incubation period, did not present themselves. In many stables, especially on larger farms, and in such where the dairy was the principal object, it was often impossible, if but three or four animals had been bought during this period (of three months), to discover the animal which had first communicated the disease. Another difficulty lay in the strict observance of that rule, according to which the seller would be compelled to indemnification, not only to replace the sold cattle, but to bear all the consequences of its infection; many a proprietor would most certainly be utterly ruined by the measure.

Professor *Haubner* moved that a proposal be made to all Governments to enact that, as is the case in Prussia, no animal be sold unless furnished with a certificate to the effect that no disease had prevailed in the district from whence it came; for greater security still, these sanitary certificates might be issued by a commission appointed for the purpose. Regarding the supervision and the control over the animals among which the disease had prevailed, he agreed with Gerlach, adding, that there existed a law also in Prussia, that every animal suffering from the Lung Disease should be branded on the horns with the initial letters of the malady (German L. K., Lungen-Krankheit), but unfortunately that law, like so many others, had fallen into neglect. He did not see any necessity for bringing the Lung Disease under a law of warranty; he would, however, have the legal regulations strictly enforced, and their non-observance punished with the utmost severity.

Dr. *Fürstenberg* stated, that after the Prussian Government had called upon the veterinary surgeons to try inoculation, that measure had—at least in his district (Stralsund)—been rendered compulsory as soon as the disease broke out in any locality. He himself had carried it out, and the result was that, although the inoculation took, fifty out of sixty-five head died. On a post-mortem examination he found, in one case, the chronic course of the Lung Disease. This fact served to prove the non-success, in some cases, of inoculation.

Professor *Niklas* adhered to his motion, that a law of warranty be applied to the Lung Disease, although it had met with opposition from different sides. It had been said that several Governments were not inclined towards a similar measure, but he was of opinion that they would be induced to agree to it, if their best judges would take the necessary steps, and other States set them the example. If the long period of incubation be regarded as an obstacle, he must apply what had been said in the discussion upon the Cattle Plague also to the Lung Disease, viz., that extremes should not be considered, but the average time taken. The protecting power of inoculation had been doubted, but literature contained far more proofs in its favour than the contrary. He was told that inoculation was powerless to protect; in return he asked for a proof that an animal which had been successfully inoculated had, after expiration of the year, been again seized with the Lung Disease; so long as this proof could not be adduced, he should remain firmly convinced that inoculation is a preventive when it takes effect,—when the animals are inoculated in good time, viz., before they become infected in a natural way. For these reasons he could but renew his motion: he agreed also with the first three points of Gerlach's motion, remarking, however, that indemnity must accompany slaughtering, and that to this effect especial measures could be taken according to circumstances.

Mr. *Schell* thought that slaughtering should be extended also to the suspicious animals, and that inoculation should be resorted to when the first plan was impossible of execution.

President *Hering* did not wish slaughtering to be practised on so extended a scale, as often the cattle of a whole district might be in a suspicious condition.

Mr. *Marcus* believed, that as so favourable an effect had been ascribed to inoculation, it would be only in the common interest to propose its adoption, and not that of slaughtering, as being too violent and general.

Professor *Zangger* was against adopting the fourth measure, viz., that all animals introduced during the first six months succeeding the disappearance of the disease should be subjected to inoculation, as opinions differed so greatly, and experience was also so variable as to its result.

Dr. *Röll* said that if inoculation was not rendered as a rule compulsory, at any rate compulsion must not be applied to the last proposal; for if it was required that newly-introduced animals should be inoculated, how much more was it necessary to apply this regulation to animals which may be at least regarded as suspicious?

Professor *Gerlach* advocated the principle that measures could only be *recommended* by Congress; the reason for his motion lay in the fact that land and stock owners could not always postpone the purchase of fresh animals until the contagion had been utterly quelled. The protective power of inoculation could not be totally denied, and as reimbursement was to follow any losses which it occasioned, he thought that his measures should be adopted in preference to the prohibition of sale, especially as the latter would not be always observed, and its non-observance might render the Lung Disease stationary.

Dr. *Müller* recognised the great difference between merely recommending measures to proprietors and the Veterinary Congress drawing the attention of Governments to the importance of the question, and strongly advised the latter course.

President *Hering* then brought the following questions to a division :—

(1.) "It is desirable that the Lung Disease be included under the law which ensures no warranty of value to the seller."

Adopted by a majority.

(2.) "The slaughtering of diseased animals is recommended for the eradication of the Lung Disease."

Almost unanimously adopted.

(3.) "All animals suspected of infection to be inoculated."

Adopted by a majority.

(4.) "That within the first year after the disappearance of the disease the animals be only sold for slaughter."

Adopted by a great majority.

(5.) "Within six months of the disappearance of the disease all beasts brought into the stable to be inoculated."

The show of hands being at first doubtful, this question was again put to a division, and rejected by a majority.

Professor *Fuchs* now, by desire of the Assembly, communicated the state of deliberations in the grand duchy of Baden with regard to the Lung Disease. After the Agricultural Society had discussed this question for twenty years, it became a subject of discussion also in all district societies and associations of the country, and once also in the Central Committee of the Agricultural Society in connection with the Government. The necessity for organising veterinary inspection became now first evident. Hitherto there were in Baden only practical veterinary surgeons, and such as were appointed by the districts and parishes and depended upon these latter for support. The Agricultural Society recognised the harm done by this system, with regard to police regulations concerning the diseases of cattle, and strongly advocated the necessity of appointing in all districts and magistracies a veterinary surgeon to be paid by the State. Furthermore the Central Committee, acting in connection with the Central Agricultural Department (a post under Government), resolved :—

1st.—That the Lung Disease should be for twenty-eight days a "gewährsmangel" (viz. under the law which during that period would not ensure the value of stock to the seller).

2nd.—That the police-regulations with regard to the Lung-disease be revived.

3rd.—That insurance, especially voluntary, be especially promoted.

Compulsory insurance had been suggested, but rejected. Reimbursement by the State or by districts for losses sustained through the Lung Disease, as is still the case as regards the glanders, was also rejected. As a last measure, the inspection by police of cattle-transport by railway was recommended.

Dr. *Müller* wished all veterinary surgeons to arrive at one and the same decision as to the duration of the period during which the Lung Disease was, in all States alike, to be placed under the law alluded to.

Professor *Fuchs* replied that in Baden the Agricultural Society had proposed its duration to be twenty-eight days, that being the longest term of laws of deposit (Währschaftsgesetze).

Professor *Gamgee* wished to know whether cases were known in which animals had been saved by the administration of sulphate of iron or other preparations of iron, as he had obtained great success in protecting herds by such means.

Mr. *Kühne* had often used sulphate of iron, but did not find it to act as a preventive; it caused the animals, however, to pass through the disease more easily.

Mr. *Kaltschmidt* had been witness where a proprietor had used it perseveringly, yet had to slaughter all his animals.

Professor *Fuchs* knew a case where a surgeon had used both sulphate of iron and sulphate of copper, but neither these means nor the inoculation of every beast had been able to arrest the progress of the disease, so that the whole stock had to be destroyed.

Mr. *May* had witnessed during many years outbreaks of the disease on large estates where the proprietors almost constantly had had recourse to sulphate of iron without any favourable results. It had therefore been relinquished in his part of the country.

Professor *Gamgee* said he often used sulphate of iron as a preservative, and with the greatest success. The sick animals were slaughtered, and the preparation in question was administered during thirty to forty days to the others; he only knew of one case of non-success. At any rate he held that it was important to increase our experience as to the efficacy of a remedy which was so beneficially used by himself.

No member wishing to address the meeting, the sitting was adjourned by the President to Friday morning.

FOURTH SITTING.—17TH JULY.

President *Hering* requested the Secretary to read over the reports of the previous meeting.

This having been done,

Professor *Fuchs* renewed the motion made by him in the first sitting, viz.: "That those diseases of animals be especially designated which it seems most necessary to include in a list of those calling for the interference of authority for their prevention." He supported his motion by stating that, apart from its evident importance, several States were about to institute new regulations with regard to the diseases of animals, or at least to submit the existing ones to a revision, and he could not but express a wish, in which he was sure those present would join, that all States should, as nearly as possible, adopt common regulations in this respect. He believed that the course of proceedings would be materially accelerated if mention were made by name of the different diseases to be included in the category in question, and he proceeded to give, by common desire, the following list:—

I.—Diseases which are transferable to mankind:

a. Dangerous, as:—
  1. Hydrophobia.
  2. Anthrax (including Erysipelas in pigs).
  3. Glanders and Farcy.

b. Less dangerous, as:—
  4. Foot-and-Mouth Disease.
  5. Cow-pox.

6. Scabies in the horse, ox, and goat.
7. Ringworm of horses and cattle.

II.—Diseases of animals not transferable to mankind:—

8. Steppe Murrain, or Cattle Plague.
9. Bovine Pleuro-pneumonia.
10. Small-pox in sheep.
11. Scab in sheep.
12. Malignant Foot-rot in sheep.
13. Malignant disease of stallions.
14. Catarrhal fever of cattle.
15. Typhus in the horse.
16. Hydatid disease of the brain in cattle and sheep.
17. Hydatid disease of the lungs and liver in cattle and sheep.
18. Trichinous disease.
19. Measles or cysticercus disease in pigs.

Professor *Gerlach*, of Hanover, thought the classification of these diseases of animals, according to their transferability to the human race, to be unnecessary, and that it would but increase the difficulty of discussion; he also opposed the admission of parasitic diseases into the disease-regulations. He furthermore should exclude the malignant catarrhal fever of cattle, and typhus in the horse, as they are not contagious.

Professor *Hering* did not attach importance to the classification of diseases in order to obtain the desired result, and was of opinion that the debate upon the diseases to be included under disease-regulations should forthwith commence in the order already given, upon which

1. HYDROPHOBIA

was, without debate, agreed to.

2. ANTHRAX.

Professor *Zangger* did not wish erysipelas in pigs to be excluded when Anthrax was brought forward, as these two diseases often led to each other, the exact limits of the one not being therefore strictly definable, and it being difficult also to distinguish the one from the other. He held it to be proved that the erysipelas of swine was infectious, as water, for example, in which the flesh of animals killed on account of the disease had been washed, and which had been given in soup to healthy pigs, had communicated the disease. In Switzerland insurance companies had been formed, but the insured owners lost the greatest number of animals, as they evidently had been wanting in necessary caution. With reference to the tenacity of the contagion, he could assert, with confidence, that it was efficacious upwards of two months. Under such circumstances it was not to be wondered at that the unrestricted sale of animals suffering under this complaint should tend to propagate the disease. He must therefore vote that the final clause—with exception of erysipelas in pigs—be dropped.

Professor *Fuchs* declared that unfavourable results to the human race from partaking of the flesh of pigs affected by this disease were unknown to him; he had also never been able to detect in the blood of animals similarly afflicted the same appearance as those of Anthrax; as he, however, could not deny either the possibility of the disease passing into positive Anthrax, or that the complaints could give rise to mistakes, he was also of opinion that the disease in question should not be excluded from the influence of police-regulations.

Professor *Falke* agreed as to the necessity of including the disease amongst those placed under police measures, but wished a distinction to be drawn between them as applied to the different complaints.

Mr. *Würst* would have Anthrax and erysipelas placed separately, under disease regulations.

Professor *Gerlach* stated that erysipelas often occurred among pigs in Hanover, but that dissection constantly bore witness against Anthrax; the latter disease he held to be non-infectious, as had been sufficiently proved not only by common experience but by experiments. He asserted confidently that the former disease was not a form of Anthrax, but admitted the existence of Anthrax with erysipelas.

Professor *Nicklas* had never found symptoms of Anthrax in erysipelas in the pig; he understood this, however, to have been the case in Bavaria, and it would be therefore necessary to inquire whether there did not exist two forms of the malady. As the differential symptoms in each had hitherto not been fixed upon, he should also declare in favour of the admission of erysipelas under the disease-regulations.

Mr. *Takoby* held erysipelas to be entirely different from Anthrax, as both diseases made their appearance simultaneously in different districts.

Professor *Hertwig* remarked that Anthrax in the common acceptance of the term was not infectious, as, for example, the Cattle Plague or the Lung Disease. It might break out in certain places and districts, and was therefore a disease communicating a peculiar and strong poison, but was not universally contagious; it spreads under certain circumstances, as, for example, when a particular miasm is observable either in the atmosphere or the earth, but never attacks whole droves at once. Many instances of Anthrax contagion had occurred which could not be accounted for, and the blame had been often ascribed to occurrences which had at other times been as evident, and yet had not brought forth the disease. The complaint is therefore to be regarded as a peculiar one, and one that calls for distinct regulations from those affecting other diseases.

Dr. *Haubner* remarked that in districts unvisited by the real Anthrax, as, for example, in the kingdom of Saxony, the Erysipelas of pigs had not the anthracic symptoms. In districts, however, where Anthrax had broken out this disease of swine might well be complicated with Anthrax, and this could be proved by its being transferred to healthy animals. Fuchs' assertion that he had been unable to detect anthracic appearances in the blood of the animals suffering under Erysipelas simply proved that the malady under his observation was not Anthrax.

Dr. *Leisering* had himself seen the appearance alluded to in the blood of swine attacked by erysipelas.

Mr. *Takoby* was clearly convinced that this disease existed in two different forms. The one (erysipelas), and more favourable phase, progressed but slowly; the other, with symptoms of Anthrax, was dangerously rapid; the latter form generally made its appearance simultaneously with an outbreak of Anthrax among cattle.

Professor *Hertwig* was not of opinion that the presence of special appearances should lead at present to the conclusion that it was of itself a diagnostic sign of Anthrax. They are to be detected in different other diseases which had none of the characters of Anthrax. He himself had found them in the blood of a boar, which animal, after suffering for three weeks from red murrain, ultimately recovered.

Professor *Fuchs* admitted the presence of special bodies in the blood in other maladies (as in Anthrax), too great an importance should not therefore be assigned to them.

Dr. *Leisering* believed that similar appearances were found in blood by means of the microscope which had nothing in common with those discovered by Pallender, Brauell, and Dèlafond, and which he himself attributed to crystallization.

President *Hering* called for a division upon the question: as to whether erysipelas in the pig was to be included with Anthrax? which was negatived by a large majority.

3. Glanders and Farcy.

These diseases called forth no debate.

4. Foot-and-Mouth Disease.

Professor *Zangger* was, generally speaking, in favour of placing this disease under police regulations; it seldom, it was true, appeared with great severity, still its diffusion might occasion heavy losses. No regulations were enforced against it either in France, Italy, or England, precisely on account of its mild form. Other and neighbouring States were thus the more exposed to infection; he should therefore recommend that all States do act in common, towards checking the spread of this disease: separate States, acting for themselves, could never ensure the desired result.

Dr. *Rueff* dwelt upon the fact that the more irksome measures were taken against a disease—and police regulations are always irksome—the more unpopular were the veterinary doctors with the farmers and proprietors. To the former was ascribed all the odium attending the inconvenient measures.

Mr. *May* knew by experience that the disease under present consideration in his district was principally propagated by swine.

Professor *Gerlach* remarked that, as was generally known, the disease was an infectious one, and its contagion transient. To avoid inconsistency, measures should therefore be adopted towards checking its progress; and this would be the more easy of execution, as it was often only necessary to follow the direction taken by the swine-droves. He was therefore for measures being taken against this disease.

Professor *Hertwig* agreed thoroughly with Gerlach, and was convinced that Governments in general would willingly give their support.

Dr. *Haubner* repeated that only a system accompanied by the least possible restrictions could lead to a successful result, both as regards the prevention of this or any other disease; he therefore would recommend the supervision of railways, by means of which diseases were carried to the greatest distances.

Professor *Hertwig* informed the meeting that a proposal had been made in Prussia to cleanse the carriages used on railroads for the transport of animals, by means of steam; the end desired could be thus effectually and speedily accomplished.

Professor *Hering* requested the meeting to decide: Whether the Foot-and-Mouth Disease should be included among the diseases submitted to regulations?

The question was answered in the affirmative by a large majority.

5. Cow-pox.

Professor *Fuchs* explained that he merely mentioned this malady in order, if possible, to obtain matter for vaccinating purposes.

Professor *Zangger* believed that to take authoritative steps respecting this malady would have the effect of rendering it more secret. Premiums were already offered for the timely announcement of this disease, and yet stock proprietors seldom gave intelligence in due time of its appearance. Taken as a disease, the one in question was of so mild a nature, that it seemed superfluous to take strict preventive measures against it. Hereupon the question:

"Whether Cow-pox should be included among the diseases subjected to police regulations?"

Was unanimously negatived.

6. Scabies or Mange in Horses, Cattle, and Goats.

Dr. *Fürstenberg* remarked that Scabies should only be brought under discussion so far as it proceeded from the sarcoptic parasite.

Dr. *Röll* thought it unwise to make any difference as regarded the Scab Disease, whether it be transferable to the human race or not. He therefore proposed: "That Scab be specially included in the disease-regulations;" and that thereby a special notice of sheep-scab became unnecessary.

President *Hering* took the votes, when Dr. *Röll's* motion was agreed to.

7. Ring-worm amongst Horses and Cattle.

Professor *Fuchs* was of opinion that this malady should be included among those which require authoritative measures, as the transmission of Herpes from these animals to the human race had been often observed.

Dr. *Fürstenburg* said that if these two diseases were included in the order at present under discussion—viz., those diseases which were transferable to the human race,—then the Herpes tonsurans of dogs should not be omitted.

Several Members having borne testimony to the mild nature of the complaint, its slight infectious qualities, and its easily-effected cure, the question, "Whether Ringworm of horses, cattle, and dogs, be included among those requiring authoritative measures for their prevention?" was unanimously answered in the negative.

8. Rinderpest (Cattle Plague).

9. Pleuro-pneumonia.

10. Sheep-pox.

President *Hering* remarked that there existed no doubt whatever concerning the necessity of placing the two first-mentioned diseases under preventive measures: they had already been subjects for discussion. As for the Sheep-pox, it would, by desire of several members, form, at a later period, a separate subject for discussion.

11. SHEEP-SCAB.

It having been already resolved that scabies be "specially included in the preventive regulations," this disease was passed over.

12. MALIGNANT FOOT-ROT IN SHEEP

was, without debate, agreed to.

13. MALIGNANT DISEASE OF STALLIONS.

Dr. *Fürstenberg* was of opinion that the term "malignant" was a misnomer, as no malignancy existed; that the complaint which hitherto bore this name was either the common disease of the generative organs, in a higher degree, or else glanders or farcy, and these latter were well known to be transferable to mankind. He did not think, therefore, that the malady in question should be included among those proposed for regulation.

Dr. *Röll* disagreed with this assertion, and declared that a malignant stallion's disease existed in reality, and that Dr. Maresch had described it fully in the *Austrian Quarterly Veterinary Review.* In various parts of Austria this malady had been carefully observed not to begin merely with deep ulcerating sores, but also with lameness, in which case exudation in the course of the nerves, as well as dropsical appearances on the membranes of the spinal cord, had been found. The disease but seldom changed into glanders, although resembling it very closely. He was decidedly of opinion that the disease in question should be included under the regulations.

Professor *Hertwig* entertained no doubt as to the existence of the malady in question, and its difference from glanders. He cited as examples geldings, standing in close vicinity, had never yet caught the disease, nor did the lameness appear in glanders or farcy.

Professor *Hering* asked the meeting, "Whether the Malignant Stallion's Disease should be included among those subjected to preventive measures?" which question was answered in the affirmative.

14. Malignant Catarrhal Fever in Cattle.

Professor *Fuchs* advocated the admission of this malady among those subjected to restrictive regulations, as it had been observed to appear at different times over an extensive district, and had shown itself to be contagious. It had thus emptied many stables in Upper Baden, and eighty head of cattle had died from its attack. It had at first been taken for the common Cattle Plague, or for some disease similar in its symptoms, and it was commonly believed to have been introduced by Hungarian swine.

Dr. *Iversen* (Holstein) corroborated, in one instance, the occurrence of the disease by means of infection.

Professor *Gerlach* stated that he had observed the repeated reappearance of Malignant Catarrhal Fever, not only in the same stable, but in the same stalls. The newly-purchased animals suffered most; and in a few years a not inconsiderable number had been seized with the complaint. Hitherto this illness had been unknown in the place, and the cattle had remained healthy in spite of the lowness and badness of their stables. A fire having, however, taken place, the stables had been newly built on higher ground, and exposed to a pretty strong draught of air. The malady then broke out, and only ceased when the doors on the weather side had been walled up.

Dr. *May* (Weihenstephan) had also had this disease under his hands, and remarked that cattle placed in very airy stables took the disease during two consecutive years, and that the disease disappeared when the animals had been brought back to their former more protected stable. He had never observed an infectious case.

Professor *Hertwig* held the disease in question to be one which owed its origin to some peculiar local miasm, which, under certain circumstances, brought forth contagion; and that, in such cases, it became particularly the veterinary surgeon's duty to induce the authorities to take the requisite preventive steps. The malady, however, not being one which called for universal measures of prevention, he should not vote for its being included among those diseases which require authoritative intervention.

Professor *Zangger* stated that the Malignant Catarrhal Fever of cattle, also called Head Disease, seldom occurred with stable-feeding; and that mostly young cattle that had been much exposed to the wind were seized by it. The disease had been constantly overpowered when the young cattle had been fed on less exposed pasture-ground, when the more draughty pasturage had been allotted to other animals, and when convenient places of shelter had been erected. He was, therefore, opposed to restrictions being placed upon trade in the case of this disease.

Dr. *Falke* considered the malady in question a typhoid disease, which he thought explained why, at different times, it had been found infectious, and at other times not.

Dr. *Röll* agreed with Professor Hertwig, that a malady occasioned by mere local effects of miasm or situation was not one to be classified among the more serious maladies which call for universal regulations.

Professor *Hering* summed up the debate; whereupon the meeting agreed *against* including " Malignant Catarrhal Fever of Ruminants " among the diseases which call for intervention.

15. TYPHUS OF THE HORSE.

Professor *Fuchs*, to fortify his opinion that this disease should be included among those calling for preventive measures, stated the malady had at times proved itself to be infectious.

Dr. *Haubner* had never known the disease in question to be of an infectious nature, and was for its exclusion.

Professor *Röll* remarked that Typhus in the horse was subject, in Austria, to preventive laws, but as a form of Anthrax, which measure had been found useful. Typhus was, by several pathologists, included under the head of Anthrax; and, as the latter had already been agreed to, he thought that the denomination "Typhus" might as well be dropped.

On the question being put to the vote, it was agreed that the disease be struck out of the number of those requiring administrative interference.

16. HYDATID DISEASE OF THE BRAIN IN CATTLE AND SHEEP.

17. HYDATID DISEASE OF THE LUNGS AND LIVER IN CATTLE AND SHEEP.

18. TRICHINOUS DISEASE.

19. MEASLES, OR CYSTICEROUS DISEASE IN PIGS.

Professor *Fuchs* stated that the inclusion of parasitic diseases (with the exception of such as proceed from worms) had been recommended on various sides, and wished to know the opinion of the meeting on the subject.

Professor *Nicklas* did not class these diseases with those requiring police regulation, it being quite impossible to take steps against them.

Professor *Röll* thought that the maladies in question belonged more to medical than to veterinary inspection.

Professor *Falke* did not wish for a separation between medical and veterinary police regulations.

Professor *Nicklas* expressed a contrary opinion.

Dr. *Haubner* held that parasitic diseases more directly concerned proprietors than the public, which should be kept in view throughout, and that they should therefore not be included in a category, only meant to comprise infectious diseases. Moreover, he agreed with Professor Nicklas, that a line should be drawn between medical regulations, which were for the protection of mankind, and veterinary regulations, which were intended for the preservation and protection of the lower animals.

Professor *Fuchs* rejoined, that however right Haubner might be in the main, yet it would be impossible to effect a total separation, because the Trichinous Disease of pigs affected the safety of mankind as well as that of animals, and it was well known that trichinous flesh caused illness, and that the Hydatid Disease of sheep could be imparted to other sheep through the tænia of the dog.

Dr. *Müller* (Vienna) also differed from Haubner; in his opinion it was not possible to separate medical from veterinary police regulations. The veterinary surgeon in the inspection of meat accomplished a purely medical duty, and no one could doubt but that he was called upon to perform, and was most fitted for, that duty.

Professor *Haubner* allowed that the veterinary surgeon, in the execution of veterinary police measures, contributed indirectly to the protection of human health; still he was not directly called upon to do so, any more than a doctor of medicine would consider it his duty to protect the lower animals from disease.

Professor *Fuchs* held it to be a duty incumbent on the veterinary surgeon to render his profession as useful towards the protection of mankind as of animals; with regard, however, to animal diseases produced by parasites, he did not insist upon their being included in the disease regulations, as they would be easier dealt with in the meat-inspection instructions.

Professor *Röll* was of the same opinion, but recommended that an exception be made with regard to trichinous disease, which, being equally dangerous to man and beast, seemed to call for direct preventive measures.

Professor *Nicklas* thought that if police regulations should be found necessary against trichinæ, the same should equally be applied to Cysticerous Disease in pigs.

Upon a division, the great majority present declared their opinion to be that:

None of the parasitic diseases above referred to should be included amongst the plagues, as they could not be regarded as properly belonging to the class of infectious diseases.

Professor *Hering* hereupon informed the Congress of the result of the debate, which was to the effect that the following diseases of animals require veterinary police preventive measures, and were therefore especially to be considered in regulations against the spread of epizootics :—

Hydrophobia.
Anthrax.
Glanders and Farcy.
Foot-and-Mouth Disease.
Scabies.
Rinderpest or Steppe Murrain.
Bovine Pleuro-pneumonia.
Small-pox in sheep.
Malignant Foot-rot in sheep.
Malignant Disease of stallions.

Professor *Zangger* called attention to the importance which railroads had attained with regard to the cattle traffic, and, as they were the principal means of rapidly disseminating infectious diseases, he moved as follows:

“ The meeting should draw the attention of all Governments to the necessity of instituting a veterinary supervision on railroads."

Professor *Fuchs* stated that in the Grand Duchy of Baden the question of checking the propagation of the Lung Disease through the railway traffic had already been discussed, and it had been suggested either to cleanse the cattle-waggons constantly and adequately, or at least to give the public the option of choosing carriages similarly purified, of which a requisite number should be always kept in readiness.

President *Hering* took the votes of the meeting upon Zangger's motion, which was unanimously agreed to as a Resolution.

Professor *Gerlach* had often observed that the authorities in Hanover had raised difficulties with regard to the final examination or inspection upon the disappearance of infectious diseases; he held the latter to be a most important measure and moved therefore that:

" The meeting do give it as its opinion that, in cases of pestilential and infectious diseases, a veterinary inquiry is necessary to attest the total disappearance of the disease."

Several members having stated that in their countries a similar regulation already existed,

President *Hering*, with Professor Gerlach's consent, worded the motion as follows:

" The meeting is of opinion that, in countries where a similar measure does not already exist, a veterinary enquiry should be instituted into infectious diseases of animals, in order to ascertain their existence both at the commencement and the end of outbreaks."

The motion as altered, was accepted unanimously.

President *Hering* now proposed Sheep-pox as a suitable subject for careful discussion; this disease having caused very considerable losses in different countries, although comparatively unknown in Southern Germany.

Professor *Gamgee* (Edinburgh) introduced the subject by a lengthened discourse upon the propagation of the disease.

President *Hering* did not doubt but that through the inoculation of Sheep-pox its contagion might be of longer duration, and the disease spread more rapidly, unless the same sanitary regulations were applied to inoculated flocks as to those suffering under the natural disease; he moved therefore:

"That inoculated flocks be treated in the same manner as those suffering from the natural form of the disease."

This was unanimously agreed to.

The day being far advanced, the sitting was now closed, and the further debate upon Sheep-pox postponed until the next sitting, which was fixed for Saturday, the 18th of July.

Professor *Hertwig*, who was prevented by professional duties from attending the next sitting, took leave of his colleagues in the following words:

Gentlemen and colleagues,—Before we separate, allow me, in a few words, to express the feelings both of gratitude and of pleasure which our meeting and the debates to which it has given rise have afforded me. I beg to express my thanks in the first place to those among us who gave the first impulse to the meeting, as well as to those who so promptly followed the invitation. Not only has an opportunity been thus afforded us, dispersed as we necessarily are, of becoming personally acquainted with colleagues of far distant lands, and of renewing old acquaintance and friendship, but we have been enabled to prove to the world that there are men in the veterinary profession who, regardless of personal interest, neither fear the loss of time nor money, if by incurring both they can by means of their scientific experience contribute to the general good. For we have been principally drawn here together by the wish to discuss the existing veterinary police rules and regulations, and if possible to effect their reform according to the present views of veterinary science. We cannot, of course, without incurring the reproach of egotism, judge as yet impartially of the probable success of our undertaking, or what impression we may have made upon the educated world; indeed we can scarcely speak of results obtained at all, for we have but laid the foundation of our work, and have only devoted sixteen hours to that purpose; of one thing I am however convinced, viz. that we have made a good beginning; we have, by discussion, obtained a more accurate knowledge of our different veterinary laws and regulations, and a better insight into their shortcomings than we could have acquired by our studies, so that in our future debates a constant improvement in our suggestions may be confidently expected. This, in itself, is a result which, as a first step in the right direction, may well satisfy us. Far more, however, do I rejoice when I observe how many here present have taken part in our tranquil and scientific discussions, and recollect that forty-five years ago, when I first became a veterinary student, this would have been totally impossible. For, in those days, what veterinary surgeon could have taken initiatory steps towards the improvement of veterinary police regulations? Whose knowledge or experience could then have warranted such a step? Were they not then almost exclusively confined to the doctor of medicine? How could we possibly imagine the fact of a congress of one hundred or more well-educated veterinary surgeons? Rejoice, then, with me, honourable colleagues, that our science has made such progress and enjoys the same privileges as its sister science of medicine, and that its professors have become both morally and scientifically independent, and that many enjoy the highest consideration. We may hope, from this progress, that the shortcomings in our knowledge and profession will gradually vanish; let us therefore, in this hope, cheerfully work on until our next pleasant meeting. I wish all a very hearty farewell!

The President thanked Professor Hertwig, in the name of the Congress, for his cordial support, which was the more welcome, having for its basis, reputation and long experience.

FIFTH SITTING, 18TH JULY.

After the reading of the last debates by the Secretary had been gone through, a communication from Veterinary-Surgeon Schütt (Wismar), whom duty had called away, was read to the meeting. It was to the effect that the ordinary sheep-pox had broken out in three different flocks, partly in very malignant form, even after an apparently successful inoculation with variolous matter.

Professor *Röll* communicated observations which had been made in the Imperial Veterinary College of Vienna, where an establishment existed for the preservation of sheep-pox matter, and which corresponded with those of Schütt:—while, as a general rule, inoculation had a merely local preservatory effect, yet of late years annual courses had occurred during which small-pox had manifested itself as the result of inoculation in several cases; but was succeeded by an universal outbreak; so that the impression arose that inoculation had been of no use to the animals, and that the general outbreak of the disease was perhaps directly ascribable to its effects. That isolated sheep-pox pustules manifesting themselves also on other parts of the body than those inoculated has been occasionally observed. This fact, however, had nothing to do with the universal outbreak following inoculation; and it must be remarked, that neither the isolation of the inoculated animals, nor the disinfection of the stable, had any influence upon the course of the disease. As lymph was used which had been carried through many removes, these facts would serve to corroborate Schütt's assumption, that possibly there are instances during certain seasons in which inoculation produced a general outbreak.

Professor *Gerlach* drew attention to several points which in an universal eruption of pox may be described as causal. To these belong the use of lymph which had been preserved in great quantities, without the previous inoculation of a certain number of sheep from which fresh lymph might have been taken. Also the tardy employment of the inoculating matter when the lymph had begun to decompose; thus the effect was but weak, and the period of incubation prolonged; and during this period a universal exanthematous outbreak developed itself. He had, in another case, when the inoculating matter used was perfect of its kind, laid the blame on the bad weather, during which the flocks were compelled to remain in the stables; he believed that, in this case, the confined atmosphere had become impregnated with the small-pox poison, and that the universal contagion had exerted its influence simultaneously with the inoculating matter, and thus caused the universal outbreak. If one of these causes had not constantly intervened, at any rate he could confidently state, that in all cases in which the period of incubation had been retarded he had also remarked a general outbreak of small-pox.

Dr. *Pillwax* had often had occasion to inoculate, but rarely observed a general outbreak to follow the operation, and then only in such cases when the sheep were weak, and more especially when they were confined in close badly ventilated stables. He therefore caused the inoculated sheep to be kept in their separate stables, where three or four stood together, and took care not to allow a great number to congregate. He would not altogether deny that especially unfavourable years may contribute to the spreading of the disease through inoculation; but he thought it was not sufficiently proved, and his experience spoke to the contrary.

Professor *Gamgee* related the case of a flock in which inoculation had been unsuccessfully tried twice, on some animals three times; and in which, after an interval of three weeks, the natural disease was thought to have broken out: upon investigation it was found however to be the inoculated disease, or the result of inoculation.

Professor *Hering* believed, that although many causes had been cited, especially by Gerlach, who had witnessed perhaps the most of such cases, still the explanation of a general outbreak after inoculation remained difficult of solution; it should not, however, be forgotten, that the inoculated animals became conductors of the contagion, which could the more easily cause a general outbreak if other circumstances — such as close, warm, and crowded stables—contributed their influences. The inoculated sheep were thus artificially infected; but, during the period required for inoculation to take effect over the whole body, they had caught the natural infection, which had taken effect some time after the first.

Professor *Haubner* remarked that these after-eruptions only made their appearance when—as a proprietor in Pomerania assured him, whose flocks were inoculated by shepherds—the inoculation had passed over *very mildly;* a circumstance which led him to suspect that the inoculation had been performed with powerless lymph. He held it dangerous to place sheep in very warm stables before the fever has passed away. Upon the question of the President as to, How to distinguish the eruptions followed by immunity from disease, from others? Haubner said, by the more rapid course of the latter.

Dr. *Marcus* remarked, that in Mecklenburg, where greater losses had been sustained than elsewhere (sixteen to twenty per cent.), inoculation was performed almost exclusively by veterinary surgeons. He also ascribed the ensuing general outbreak in part to the great heat; he had been more fortunate with protective inoculation. During the previous autumn, he had produced very perfect eruptions when the temperature of the stable was only from one to two degrees of heat; below freezing-point he was unsuccessful.

Professor *Unterberger, Sen.* had in his former place of residence (Simbink, in Inner Russia), almost every year, the opportunity of witnessing the disease; he stated that inoculation was there restricted to the superior flocks of greater proprietors, whilst the common country sheep were never inoculated at all. Although the natural disease was generally of a mild character, and although inoculation had been very successfully practised, still there had been years when not only enormous losses occurred among the common country sheep, but when inoculation had occasioned as great devastations among the better sheep as would have been caused by means of natural infection. In other parts yearly courses had occurred, in which the loss from common infection among the country sheep had been but small (two to three per cent.), whereas the losses amongst the superior flocks had invariably been greater. He had seen small-pox in a flock in Liefland only once in thirteen years, it was impossible to discover whence the disease had come; it was fortunately conquered by means of inoculation. In 1833 he visited Prince Esterhazy's sheep-folds in Hungary; the prince then kept a separate inoculating establishment, and inoculation was constantly performed by three veterinary surgeons especially appointed for that purpose; on the year in question there had been a greater number of victims than usual. He was of opinion, therefore, that Schütt's question should be answered in the affirmative, viz., That Small-pox as well as the Cattle Plague, which is also susceptible of the same change in its natural course as after inoculation, and indeed as every other infectious disease, assumes a more malignant form in certain years than in others.

Professor *Gerlach* here remarked, that he had only given it as his opinion that a general outbreak after inoculation could be traced sometimes with tolerable accuracy to certain causes, but that in general it was inexplicable.

Dr. *Fürstenberg* ascribed the frequent appearance of the disease in question in Northern Germany to the circumstance that the necessary prudential measures, such as isolation, &c., had not been observed in various districts of the country with regard to flocks which had been inoculated. With regard to the cases quoted by Schütt, he reminded the meeting that in those years in which the real sheep-pox raged as an epizootic, inoculation—far from hindering its outbreak—spread the contagion, and hastened it far more than would have been the case in the ordinary course of the epidemic.

Dr. *Haubner* advised that in recommending inoculation as a preventive measure against the disease, a distinction should be strictly drawn between protective and necessary inoculation.

The following question was then put to the meeting: "Should inoculation (in cases of imminent danger of disease being brought in before an outbreak has taken place in the flock), be recommended as a preventive measure against the propagation of the sheep-pox?" and carried.

The second question: "Should protective inoculation (inoculation of lambs in districts where the disease does not prevail) be recommended as a measure against sheep-pox?" was answered in the negative.

Professor *Haubner* was by no means satisfied that protective inoculation should have been negatived as a preventive measure against the spreading of sheep-pox, if the aim in view was to be the eradication of the disease; he was inclined to go a step further, and proposed therefore: "That protective inoculation should be forbidden by police regulation," for what was not forbidden was sanctioned.

Dr. *Fürstenberg* concluded from the last motion that the disease was only considered as a contagion, and that other general causes were ignored which he was of opinion might exert a material influence.

Professor *Gerlach* considered a division upon Dr. Haubner's amendment unnecessary, as the meeting has already recognised the necessity of treating the inoculated flocks similarly to those infected by the disease.

Professor *Stockfleth* (Copenhagen) assured the meeting that in Denmark both inoculated and infected flocks were placed under police surveillance.

Dr. *Haubner* withdrew his amendment.

The President thereupon invited the Assembly to propose further subjects for discussion.

Mr. *Adam* (Augsburg) referred to the programme of the present Congress, in which, most properly, a great value was ascribed to statistics upon the prevailing infectious diseases of animals and upon cattle traffic. The necessary sources of information were wanting to enable him to give statistical details upon the cattle trade in Bavaria: on the other hand the commercial summary of the Central-office of the Confederation (Central Bureau des Zollvereins), furnished information concerning the cattle-trade movements in Germany. In order to produce statistics relating to infectious diseases, it would be necessary that Reports, according to a particular form, should be revised by veterinary surgeons and published by order of the higher authorities. The veterinary organisation should undergo a revision itself if these statistics were to be of any value. It seemed almost unnecessary to describe the usefulness of similar statistics; the veterinary Reports which had been published in different States were in themselves a sufficient proof. He moved that the meeting express it as its opinion: "That all States (in which this is not already an existing institution), should possess and publish statistics founded upon veterinary reports on infectious diseases."

Dr *Rueff* held that it would be very difficult to produce works in any way approaching to accuracy, and asked for information as to the means to be employed in order to arrive at the correct figures.

Professor *Nicklas* did not think that the difficulties would be so very great in countries where the veterinary profession was duly organized. On the outbreak of an infectious disease, a veterinary surgeon might be commissioned by government to watch its progress, to ensure the employment of all existing preventive measures, and, above all, to register the entire stock. This official should at fixed intervals report to his superiors, and these Reports, together with a final one upon the extinction of the disease, should contain its description, the increase and decrease of stock, any especial remarks upon the complaint, and at the end of the year be put together and sent to the highest authority to be confided to one hand for the purpose of revisal and publication. Thus it would be possible to obtain, without much trouble, statistics upon diseases prevalent during the year.

Professor *Fuchs* recognised the value of disease-statistics and the publication of particular observations made during the prevalence of a disease; he also thought the plan proposed by the former speaker a feasible one; he feared, however, that the accuracy of these Reports would suffer much from the usual concealment of the disease.

Professor *Stockfleth* did not consider the unavoidable concealment of the disease to be of such moment that it should much diminish the value of disease-statistics. In Denmark all veterinary surgeons were bound to keep statistical tables of infectious diseases, and to send them in once a year. A general summary was then published in the newspapers.

Dr. *Kinberg* (Stockholm) stated that an institution similar to that in Denmark, existed in Sweden.

Dr. *Rueff* admitted that the law in Würtemberg ordered, on the extinction of a disease, Reports as to the numbers of sick, dead, and killed; still an accurate account was seldom given by the proprietors of stock, and the research was a source of great personal trouble and loss of time to the veterinary surgeon.

Dr. *Adam* endeavoured to dispute the accuracy of the above remarks by observing that doubtless many present had been commissioned, under police sanitary measures, to watch over live-stock, and had been enabled to keep exact lists without incurring much trouble. He would aim, however, principally towards obtaining a thorough re-organization of the veterinary faculty: once in possession of a well-appointed system of investigation and inspection, the most beneficial results might reasonably be expected.

Dr. *Schmelz* stated that in the Electorate of Hesse-Cassel the enumeration of live-stock was made by the different district authorities, and that no obstacle intervened to prevent its accuracy; the veterinary surgeons had moreover to send in their own Reports.

Dr. *Müller* believed that similar institutions existed in all States where sanitary laws were in some measure well regulated; in Austria such had been the case for many years.

President *Hering* thought that there could be no danger whatever in expressing to the different governments, which as yet lack a similar reform, the wish contained in Mr. Adam's motion, and on a division the motion was unanimously agreed to.

Professor *Fuchs* introduced a question, apparently of international interest, viz.: "Whether it be advisable to advocate the founding of veterinary experimental establishments?" Under this title, he meant establishments in which scientific experiments could be made upon the origin and spread of diseases; upon inoculation and its preservative power, not only against the Lung Disease but against all infectious maladies; upon the effect of medicinal remedies; in short, upon all subjects connected with veterinary science. It would form a further subject for enquiry whether experimental departments should be founded in the different veterinary colleges and agricultural societies, or whether similar institutions should remain independent of all other branches.

Professor *Nicklas* was of opinion that such establishments were much to be wished for, as there were a number of questions the solution of which would require a series of accurate experiments. The veterinary surgeon alone, in daily practice, and even veterinary colleges themselves, could not arrive at the desired results: they had no time for thorough research. Experimental establishments, acting on that principle alone, could draw up special accounts and lists, and by these means science might be enabled to make greater progress in a few years than had hitherto been possible in treble the amount of time. He again gave his warm adhesion to the plan proposed, but he was unable to suggest how the means were to be obtained for the purpose of setting it on foot.

Professor *Zangger* agreed with Dr. Nicklas, that many questions of importance still required solution; but that result could better be achieved in the first place by means of men of talent and self-denial than of money and assistance of the most varied kind. The question was not merely how to achieve a directly useful result; an inner conviction became necessary, and it was to be feared that a merely mechanical management of experiments would fail to give the desired scientific result. Public money would be required for the purpose, and a reaction in public opinion would soon be manifest, as the uninitiated were apt only to appreciate rapid and self-evident results, to the total disregard of the interests of science. The universal endeavour towards the solution of controversial questions would soon subside, as the State would submit their decision unhesitatingly to such as were appointed by itself for the purpose. He thought that the State should support men and institutions for the purposes enumerated; he did not favour the idea of founding separate veterinary experimental establishments.

Professor *Haubner* declared that during his ten years' sojourn in Saxony the Government had never once denied him pecuniary assistance towards carrying out experiments, as was well known from the publication of the results thereby obtained. Only very lately a physiologico-chemical experimental department had been added to the veterinary college; also a special chemist had been attached to his own particular department. Veterinary colleges were not always able to make the necessary experiments; they were often in want of the requisite material. He was at a loss to account for such questions being put to veterinary colleges as, for example, the origin and dissemination of diseases such as Anthrax, Pleuro-pneumonia, Influenza, &c. The practitioner had a far more favourable opportunity for observation, and by a careful taking of notes and their publication, was enabled to arrive sooner at distinct conclusions, than could be done in experimental establishments. The progress which had been made of late years in veterinary science was far more due to some men of greater learning and research than we had formerly than to any establishment. He would not support the measure; if however any one should wish to prosecute the scheme, and were in possession of the requisite appurtenances, he doubted not but that any government would grant the necessary funds.

Dr. *May* stated that the Chambers in Bavaria had increased their grants to the veterinary college, expressing the wish that experiments—both physiological and pathological—should be made. This had been done both in the college and in the "Central Schule." He had, however, always been of opinion that large funds, roomy quarters, and much time, were requisite for experiments on a greater scale; he could not speak favourably of separate experimental establishments, as the necessary money for their foundation would hardly be forthcoming. He believed that such institutions might be useful if united to veterinary colleges or agricultural societies; and in such a case, however, the means at disposal should be carefully considered.

Professor *Gerlach* was of opinion that veterinary colleges must first of all look to their own support. Experiments might then be tried when this first end had been accomplished. He fully believed that every government was ready to advance the necessary funds, if only convinced of the worth and zeal of the professors. Another question arose, whether it would not be better to unite the physiological experimental establishments to the veterinary colleges, as was the case in Saxony, than to agricultural schools: he was decidedly in favour of the former. In the latter establishments there was generally but one competent judge; the experiments made, therefore lacked the conclusiveness necessarily arrived at by different professors in a veterinary college.

President *Hering* reminded the meeting that experiments have been made for a long time past at the different agricultural and veterinary colleges with great success, and it is to be wished that they may be continued on a yet larger scale, but that this question does not belong to the programme. It was different with the resolution proposed by Professor Fuchs (founding of independent experimental establishments), and he invites the meeting to give their opinion by vote on that subject. On dividing, the "Founding of independent veterinary experimental establishments," was negatived.

Professor *Falke* (Jena) had made observations on influenza, and published a pamphlet upon that disease. As the latter might be unknown to some of the members present, he offered a number of copies for present perusal; remarking, however, that he did not wish to call forth a discussion, yet was quite ready to answer any objections which might be brought against his views.

He also presented copies of his brochure, 'Anthrax and Hydrophobia are Typhoids, and can be eradicated by means of Inoculation.'

Professor *Fuchs* laid before the meeting the Commission's Reports, and a Treatise upon the Veterinary Profession in Baden, which were placed at the disposal of the present meeting by the Agricultural Society of that country. He stated that this Society had resolved to bring about, if possible, a better organization of the veterinary service, as well as to prevent the spreading of the Lung Disease. The following measures were kept principally in view with regard to the latter, viz. :—1st. The classification of Lung Disease among the defects (subject to the law of want of warranty); 2ndly. The revisal of the police regulations against Lung Disease; 3rdly. The encouragement of voluntary assurance societies; 4thly. The inspection of animal-transport by railway.

Professor *Müller* wished that a common opinion could be arrived at as to the equal duration in all countries of the warranty period against the Lung Disease (viz. the length of the period during which the seller of diseased animals is compelled by the above law of "want of warrant" to indemnify the buyer).

No motion being however proposed on the subject,

President *Hering* renewed the motion made by Professor Gamgee in the first sitting:

"Relating to the nomination of a select committee to assist the chair."

Professor *Röll* believed that unless the business of a similar committee was to comprise the introduction of the next Congress, it might easily be dispensed with; for it could not be expected to carry through any of the proposed measures: only the delegates of the different Governments had it in their power to make Reports to those by whom they were sent, and personally to advocate the execution of the measures recommended by the Congress.

If the duty of such a committee were to consist also in the verification of the Reports, he believed that the account of the debates would thereby lose in impartiality; it would be subjected to improvements, and things would appear which had never been spoken in this meeting. He was of opinion that, as a President and two Secretaries have been chosen by common consent and with the full confidence of the Assembly, the delivery of the Report may safely be confided to them.

President *Hering* defined the duty of a committee to consist in seeing to the execution of the business confided to the chair, and to provide proxies or representatives in case they should be wanted.

This speaker believed it to be decidedly necessary, as the bureau had agreed:

"That the Report of the present proceedings be printed, submitted to the Governments of all States, and that a copy be sent to each member of the Congress,"

in case the assembly gave its consent hereto.

The meeting, rising in a body, notify their consent to the motion.

Professor *Nicklas* held the drawing up of the Report to be the business of the present existing bureau; and the initiatory measures towards the next Congress, and laying down of the questions which were then to form subjects of discussion, to belong to the committee. He did not think it right that the latter duties should devolve upon the present bureau, as, according to an oft-repeated wish, the next Veterinary Congress was to be held in Vienna, which city is not the place of residence of either the present President or Secretaries.

Professor *Haubner* proposed that the meeting follow the example given by the meetings of the German Naturalists and Doctors, which always chose a president for the duration of their assembly, with one or two managers of the business department. The place of meeting was proposed two years previously, and on the following year definitively fixed upon. First of all it was necessary to understand whether the assembly intended to meet again, where and when, and to whom the current business was to be confided.

Professor *Hering* remarked that as it had already been decided that a Veterinary Congress might be called again together, which other extraneous undertakings might induce veterinary surgeons to join, *Vienna* would doubtless meet with no dissentient voice if proposed as the next place of rendezvous. As, however, the period for the Exhibition to be held in that city was not yet definitively fixed, the date for the Veterinary Congress should be fixed by those members to whom the current business was confided.

Mr. *Waelther* (Bautzen), without further introduction, proposed:

"That the Professors of the Vienna Veterinary College, Messrs. Röll, Müller, and Pillwax, here present, be chosen as a Superintending Committee, and that the choice of President be made on the meeting of the Assembly."

The meeting unanimously accepted the proposal.

Professor *Müller* expressed thanks for the confidence reposed in himself and colleagues, and accepted in his own and their name the duties implied by the choice of the meeting. He believed that the assembly would agree:

"That the second Veterinary Congress should take place in Vienna in 1865, should the agricultural show or exhibition take place in that city during that year;—should the latter, however, be postponed till 1866, then the Congress should also be held a year later."

President *Hering* concurred, and the assembly agreed unanimously to the motion.

The question whether North and Southern Germany should be visited, as is the case of the meetings of doctors, naturalists, and landed-proprietors, was not followed up.

Professor *Gamgee* remarked that not only Germany, but also Switzerland, France, or England might be chosen as places for future meetings.

Professor *Müller* proposed that the meeting do express their thanks, by rising, to

"The present committee for the friendly and obliging performance of the duties devolving upon them during the first international Congress."

The assembly rose.

OFFICIAL REPORT

OF THE

SECOND INTERNATIONAL CONGRESS OF VETERINARY SURGEONS.

Before drawing up the following Report of the proceedings of the Second International Congress of Veterinary Surgeons, some discussion arose as to one of two courses which should be adopted in laying the deliberations of the members before the public—first, whether the proceedings should be submitted in a summary form; and, second, whether it would not be better to give the speeches and resolutions exactly as taken by the stenographic writers present at the Congress. It was at length decided in favour of the latter course, so that those not present at the Congress might have an opportunity of becoming acquainted with the entire range of deliberations, and with the arguments which led to the adoption of the resolutions; besides, such a treasure of valuable observations, experiences, and facts had been elicited during the debates that it was deemed advisable for the dissemination of sound doctrine to submit the Report in a complete form; it is therefore, with the exception of repetitions, and more especially of continually recurring phrases, nearly the same as in the shorthand writers' notes.

The First International Congress of Veterinary Surgeons which assembled in Hamburg in 1863 selected at its fifth sitting on the 18th July as place of meeting for the next Congress the city of Vienna, and the professors of the Vienna Veterinary Institute who were present—Drs. Müller, Pillwax, and Röll—were commissioned to make the necessary preliminary arrangements. As it was understood that during 1865 or 1866, an international exhibition of the produce of industry, commerce, and agriculture would take place in Vienna, it was resolved, that the Veterinary Congress should meet at the same time. Immediately on his return from Hamburg, Dr. Röll reported to the Austrian Ministry of State, which, by order of the Emperor, had nominated him to the First Congress, that the selection for the meeting of the Second Congress had fallen on Vienna; he likewise submitted on the 1st of February, 1864, to the same Ministry, in the name of the preliminary Committee, the Official Report of the Congress in Hamburg, which was forwarded to him by Dr. von Hering.

By a decree of the Ministry of State, dated June 20, 1864, the preliminary Committee were informed that the Emperor had given permission on the 24th of April, 1864, that the meeting of the Second International Congress of Veterinary Surgeons, should be held in Vienna. Meanwhile the hope that an international exhibition would take place at Vienna, either in 1865 or 1866 was disappointed; it became therefore the duty of the Committee to learn if a larger agricultural show would be arranged during the course of the year, at a time when the teachers of the veterinary schools of the different States of Europe and veterinary surgeons practising their profession would be able to leave their homes in order to participate in the deliberations of the Second Congress of Veterinary Surgeons, which should be called together at the same time. At the commencement of 1865, it was ascertained that no agricultural show on an extensive scale would take place during August and September, 1865, the Royal Agricultural Society having fixed upon May, 1866, as the best time to exhibit the agricultural produce of the empire. Although, therefore, the projected exhibition would have contained many interesting and instructing objects, yet was it not considered advisable to delay the period of meeting of the International Congress, as it was much doubted whether many veterinarians would be able to participate in its deliberations in the month of May. Invitations for the meeting of the Congress were accordingly issued, the Committee selecting, as best suited for their purpose, the year 1865, which year had already been decided on in Hamburg, in the event of no international exhibition being appointed to take place in Vienna.

In the mean time, the Committee communicated with the former President of the First Congress in Hamburg, Dr. von Hering, about the selection of subjects for the deliberation of the next Congress, and, after the Imperial Academy of Science had placed the required accommodation in their buildings at the disposal of the Congress for its meetings, on the 30th of March, 1865, the following circular was sent to every member of the Hamburg Assembly, to all veterinary colleges, to the more prominent agricultural schools, to veterinary and agricultural societies, and to numerous personages throughout Europe, filling distinguished positions in veterinary science :—

The First International Congress of Veterinary Surgeons, which met during the year 1863 in Hamburg, at the instigation of Professor Gamgee of Edinburgh and Professor Hering of Stutgart, resolved in its fifth meeting on the 18th of June, that Vienna should be the place of meeting for the next Congress during the year 1865, and appointed the undersigned professors of the Vienna Veterinary Institute, who were present in Hamburg, to make all preliminary arrangements requisite for the purpose of realising the desire of the Congress: that its meeting might be arranged at a period when a greater agricultural exhibition takes place in Vienna during 1865, became impossible, owing to independent causes, which the Committee could neither remove nor overcome. In consequence of the possible agricultural exhibition during 1866, its conditions and extent having only now been made a subject of deliberation of the Imperial Society of Agriculture, and in consequence of its being at present quite uncertain if the said exhibition will take place at a time when gentlemen, wishing to take part in the deliberations of the Veterinarian Congress, will be able, with regard to their duties, to undertake a voyage to Vienna—the undersigned have, in consonance with the wishes of the members of the Hamburg Congress, considered themselves bound, independent of any such exhibition, to take the necessary steps for the meeting of the Second International Congress of Veterinary Surgeons, at Vienna, during the year 1865.

The Emperor has deigned to give his permission that the assembly of veterinarians may take place at Vienna in the year 1865. As the fittest period for the meeting of the Congress appeared to us the second half of the month of August—on the one hand, because the vacation will have commenced in all veterinary colleges, and in consequence the professors would be enabled to be present at the meetings; on the other hand, because the season has not progressed sufficiently far to render the voyage to the veterinarians from the north of Europe too difficult—the Committee, with the consent of the Ministry of State, have therefore fixed the time of these meetings from the 21st to the 26th of August, 1865, and should the nature of the deliberations render it necessary, to the 31st of August. The Imperial Academy of Science has placed the necessary localities within the academy (University Place No. 2), at the disposal of the meeting; and from the 18th of August, one or the other of the members of the Committee will be always there to receive the members of the Congress on their arrival.

The purpose (as is known) of these Congresses is, to deliberate on subjects of veterinary science, which are of international importance, to propose motions with reference to them, and to submit resolutions which have been adopted to the separate Governments. Consequently, as was the case already in Hamburg, communications will be made principally about the spreading and the course of animal epidemics in various countries; motions about their extirpation, about desirable measures to be adopted regarding the international traffic with animals, and about questions of veterinary science in general, particularly in as far as they are of sanitary, or veterinary interest, will be made the chief subjects of debate. In consequence of the differing significance and importance which is ascribed to certain animal epidemics in different countries of Europe, it will depend on the individual members to make communications about those subjects which appear to them of especial importance, and to submit them to the discussion of the assembly. The undersigned members of the Committee have agreed, with sanction of the Ministry of State, to propose the following subjects for deliberation to the assembly:—

1. With regard to Rinderpest. Continuation of the discussion, commenced in Hamburg, and, if possible, a final decision about the number of days to which the until now usual quarantine period of twenty-one days for the prevention of importation of Rinderpest may be reduced; and about an equalised mode of procedure with regard to the treatment of animals and animal produce in international commerce, during a time when Rinderpest is prevalent in any country.

2. Deliberation on the existing mode of disinfection of the railway waggons for the conveyance of cattle, in several states; and, if possible, a decision of an equal mode of cleansing, having regard at the same time to the interest of cattle-traffic, veterinary police, and the management of railroads.

3. Hydrophobia was prevalent, during the last few years, to a greater extent, not alone in Vienna, but likewise in other large towns, and even in some districts. A discussion on the cause of the disease, on the results of the measures adopted for its prevention, as for example: a dog tax, periodical visitation, obligation to use muzzles, &c., may be conducive to the adoption of a general rational measure regarding dogs.

4. In several states during the last few years laws regarding warranty have been promulgated, or at least those defects and diseases have been under consideration, to which is applied the quality as redhibitory defects. With regard to the international commerce in animals, a general law of warranty would be of great importance, and an agreement of the assembly about those defects and imperfections which it would desire acknowledged as redhibitory defects, would be of great utility to the legislation.

The Committee has the honour to invite to this meeting at Vienna the professors of veterinary science, the members of veterinary societies, all veterinary surgeons, and all agriculturists, who feel an interest in discussions of this nature.

Those gentlemen desiring information on certain points, are requested to communicate in writing with any of the undersigned members of the Committee, who will gladly answer all questions.

Dr. Pillwax.
Dr. Röll.
Dr. Müller.

Vienna, 30th March, 1865.

The Ministry of State, which assisted and promoted the endeavours of the preliminary Committee in the most liberal manner, communicated this programme to the Governments of all the states of Europe, and invited them to send delegates to this Congress. The result of this step will be best seen by a perusal of the list of members, which includes representatives from nearly every country in Europe.

The Ministries of State, of Commerce, and of Agriculture, granted to the members of the Second International Congress many privileges, which were thus brought by the Committee in May, 1865, under the notice of those interested in the proceedings:

> With regard to the programme of the 30th of March last, the Committee of the Second International Congress in Vienna has the honour to give the following further information. The railroad companies in Austria, and the Imperial Austrian Danube Steamboat Company, have announced their willingness to reduce the prices for the voyage and return of the members of the Congress of the 1st and 2nd class on railroads, and the 1st and 2nd place on steamboats, if an admission ticket to the Congress is produced, signed by the Committee.
>
> The gentlemen who intend to avail themselves of this, will communicate about the receipt of their ticket with the member of the Committee, Professor Dr. Pillwax.
>
> The Ministries have ordered that gentlemen from foreign countries, who, besides their passports, produce the ticket issued from the Committee, shall be assisted in passing the border in the quickest manner; their travelling effects shall not be subjected to an inspection by custom-house officers, but shall, without any interruption, be forwarded to the principal custom-house at Vienna.
>
> The Department of the Imperial Master of the Horse, has given permission that those gentlemen travelling by way of Bohemia, or the Coast of Carinthia, may inspect the imperial studs situated near the railroad, viz.: at Kladrub (station Kladrub on the northern line), or at the Karste (station Prestranck on the southern line).
>
> The scientific and art-collections of the metropolis, will on different days be open exclusively to the members of the Congress, on production of their tickets of admission to the Congress.
>
> A visit to the superior School of Agriculture at Hungarian Altenburg has been decided on at the conclusion of the Congress, and His Imperial Highness Archduke Albrecht has given permission to inspect the stock of cattle of the archducal estate of the same name.
>
> *Vienna, May,* 1865.

To meet the expenses necessarily attendant on the Congress, the Emperor of Austria was graciously pleased, in a decree of the 7th of May, 1865, to grant a sum of money for that purpose. This grant enabled the preliminary Committee to cover the expense of printing and sending out programmes, circulars, and tickets of admission; the printing required during the sittings of the Congress, the stenographic reports of its deliberations, and other necessary expenses were also defrayed from the Emperor's grant. The directors of the different imperial railroads likewise reduced the prices of travelling to the members of Congress when making excursions to Hungarian Altenburg, Kladrub, Lipizza, Kisber, and back to Vienna.

The Congress began its sittings on the morning of the 21st of August and continued their deliberations to the 27th, 171 members having taken part in the discussions of the seven days. On the 28th of August an excursion to Hungarian Altenburg for inspecting the superior Agricultural School and the domains of his Imperial Highness Archduke Albrecht, took place, in which about eighty members joined, all of whom were entertained in the kindest and most liberal manner. On the 29th and 30th of August several members of the Congress undertook a journey to Kladrub and Lipizza, and thoroughly inspected the studs placed there, orders that every courtesy should be shown towards the members having been issued by His Excellency Count von Grünne, Master of the Horse to His Imperial Majesty. The preliminary Committee was most generously assisted in its labours by the highest authorities, and frequently expressed themselves much indebted to the court officials and others, for information of interest and importance to the Congress.

LIST OF THE MEMBERS OF THE SECOND INTERNATIONAL CONGRESS OF VETERINARY SURGEONS AT VIENNA DURING THE MONTH OF AUGUST, 1865.

D. G. is meant for Delegate of Government.
D. C. „ Delegate of Veterinary College or Society.
D. A. „ Delegate of Agricultural College or Society.

Baden —Fuchs, Medical Counsellor and Professor at Karlsruhe, D.G.

Bavaria.—Adam, Th., Police Veterinarian and Medical Assessor at Augsburg, D.G.

Bauer, District Veterinarian at Kipfenberg.

Beer, K., Town and District Veterinarian at Amberg.

Biber, Franz, Town and District Veterinarian at Hof.

Brandl, Adolf, Division Veterinarian at Munich.

Bürchner, H., District Veterinarian at Geiselhörning, D.A.
Deisinger, District Physician at Pappenheim, D.A.
Frank, L., Professor in the Veterinary College, Munich.
Geirer, Dr., District Veterinarian at Türkheim.
Hofer, Dr., Professor in the Royal Veterinary College, Munich.
Mohr, Regimental Veterinary Surgeon, Nüremberg.
Mussgnug, Military Veterinary Surgeon, Augsburg.
Mussgnug, Veterinary Surgeon, Regensburg.
Probstmayr, Regimental Veterinary Surgeon, Munich.
Reuther, Fred., District Veterinarian, Wasserburg.
Röbl, Town Veterinarian, Munich.
Sondermann, Police Veterinarian, Munich, D.G.
Vincenti, District Veterinarian, Prien, D.A.
Weber, Regimental Veterinary Surgeon, Würzburg, D.A.
Weiss, Regimental Veterinary Surgeon, Munich.
Wilm, M., Police Veterinarian, Regensburg, D.A.
Wirth, Teacher in the Royal Industrial School, Hof.

Belgium.—Husson, Professor in the Royal Veterinary College at Brussels, D.G.

Denmark.—Tscherning, Professor and President of Veterinary Council of Health, Copenhagen, D.G.

Danubian Principalities.—Kolben, M., Captain and Veterinary Surgeon of the 1st Regiment of Lancers, Bucharest, D.G.

France.—Reynal, Professor in the Imperial Veterinary College, Alfort, D.G.

Great Britain.—Ernes, W., Veterinary Surgeon, London, D.G.
Field, junior, Vice-President of the Royal Veterinary Society, London, D.C.
Gamgee, J., Professor, London.
Spooner, Professor, Royal Veterinary College, London, D.G.
Wilkinson, J., Colonel, Principal Veterinary Surgeon of the British Army, D.G.

Hamburg.—Krohn, L. M. F., Veterinary Surgeon, Hamburg.
Schrader, C. F. W., junior, Police Veterinarian, Hamburg, D.G.

Hanover.—Gerlach, Professor and Director of the Royal Veterinary College, Hanover, D.G.

Hesse (Grand Duchy).—Castres, Dr., Medical Assessor, and District Veterinarian, Mayence, D.G.
Wüst, Medical Counsellor, Darmstadt, D.G.

Hesse (Electorate).—Schmidt, District Veterinarian, Hofgeismar, D.G.

Hohenzollern.—Schanz, J., Departmental Veterinarian, Sigmaringen.

Holstein.—Iwersen, F., Dr., Regimental Veterinary Surgeon (retired), Segeberg.

Italian States.—Papa, Fr., Dr., Professor, General Secretary of the Societa Nazionale di Med. Veterinaria, Turin, D.C.
Perosino, Felice, Cav., Professor in the Veterinary College, and Inspector of the Military Veterinary System, Turin, D.G.
Tamberlicchi, Tommaso, Professor in the University at Rome, D.G.

Nassau.—Gies, District Veterinarian, Westburg, D.G.
Groll, District Veterinarian, Wiesbaden, D.G.

Norway.—Lambrecht, Veterinary Surgeon, Bergen.
Vaumund, M., Veterinary Surgeon, Christiania.

Austria.—Armbrecht, Aug., Dr., Professor in the Imperial Veterinary Institute, Vienna.
Bauer, Franz, Imperial Superior Veterinarian, Vienna.
Bleiweiss, M., Dr., Imperial Land Veterinarian and Professor, Leibach, D.G.
Böhm, C., Veterinary Surgeon to the stud of Count Esterhazy, Altso-Jattó.
Bruckmüller, Andr., Dr., Professor in the Imperial Veterinary Institute Vienna.
Czech, Wenzel, Assistant on the Imperial Veterinary Institute, Vienna.
Egger, John, Veterinary Surgeon, Villach.
Ernst, John, Surgeon and Veterinary Surgeon, Mezö-Kövesch.
Forster, Leopold, Dr., Professor on the Imperial Veterinary Institute, Vienna.
Garger, Veterinary Surgeon to the stud of Count Festetits, Keszthely.
Geheringer, Jos., Veterinary Surgeon, Valgro.
Germarz, Th., Veterinary Surgeon, Munkacz.
Gierth, H., Veterinary Surgeon, Baden.
Gruber, A., Imperial Veterinary Surgeon, 1st Class, Pesth.
Grunt, Franz, Imperial Land Veterinarian, Krakau.
Hackel, Jos., Veterinary Surgeon, Haida.
Hadinger, M., Dr., Namest, D.A.
Hecke, Wenzel, Professor in the Imperial Agricultural School, Hungarian Altenburg.
Hexel, Christ., Imperial Veterinary Surgeon-in-Chief to the military stud at Radautz.
Von Koch, Joseph, Chevalier, Dr., Imperial Professor, Director of the Provincial Shoeing Institute, Graz.
Kompast, Ed., Imperial First Court Veterinarian, Vienna.
Kopatscheck, Imperial Land Veterinarian, Innsbruck, D.G.
Kopay, Chr., Veterinary Surgeon, Oedenburg.
Korzil, Raymond, Assistant in the Imperial Veterinary Institute, Vienna.
Krein, Imperial Land Veterinarian, Triest, D.G.
Langenbacher, Anthony M., Dr., Imperial Land-Veterinarian, Vienna.
Laurinschek, John M., Dr., Comität Veterinarian, Agram.
Maresch, John M., Dr., Imperial Land Veterinarian, Prague, D.G.
Markus, Thom., Imperial Land Veterinarian, Agram.
Masch, M., Dr., Director of the Imperial Superior Agricultural School, Hungarian Altenburg, D.G.
Maurer, A., Imperial Veterinary Surgeon, Stuhlweissenburg.
May, Raymond, Professor of Veterinary Medicine in the Agricultural School, Tetechen-Lübwerd, D.C.
Mihatsch, A., Veterinary Surgeon, Klagenfurt.

Mina, Professor, Klausenburg.

Mraseck, Fr., Imperial Veterinary Surgeon, 1st Class, Vienna.

Müller, Fr., Dr., Professor in the Imperial Veterinary Institute, Vienna.

Nedred, Imperial Land Veterinarian, Czernowitz, D.G.

Neugebauer, Veterinary Surgeon, Brünn.

Neumann, Jos., Veterinary Surgeon, Vienna.

Nikerle, W., Dr., Assistant and Lecturer in the Imperial Veterinary Institute, Vienna.

Novotny, Fr., Imperial Veterinary Surgeon, 1st Class, Prossnitz.

Pabst, Dr., Imperial Ministerial Counsellor, Representative of the Austrian Ministry of Commerce.

Panizza, B., Dr., Med. Professor in the Imperial University of Padua, D.G.

Von Paumgarthen, Max., Assistant on the Imperial Veterinary Institute, Vienna.

Perdan, A., Veterinary Surgeon, Vienna.

Petranyi, Jac., Veterinary Surgeon, Bülled.

Pillwax, John, Dr., Professor in the Imperial Veterinary Institute, Vienna.

Von Rudda, Chevalier M., Dr., Veterinary Surgeon, Vienna.

Radlmesser, Master of Veterinary Science, Vienna.

Reich, Franz, Comität Veterinarian, Szathmar.

Renner, Franz, Imperial Superior Veterinarian, 1st Class, Instructor of Shoeing, Imperial Veterinary Institute, Vienna.

Röll, M. F., Dr., Professor and Director of Studies, Imperial Veterinary Institute, Vienna.

Saass, Anth., Veterinary Surgeon, Stein.

Salori, pensioner, Imperial Land Veterinarian, Brünn.

Schmidt, Max., Veterinary Surgeon, Agram.

Stenzinger, Anth., Austrian Land Concipist.

Von Szabó, Alois M., Dr., Director of the Imperial Veterinary Institute, Pesth, Delegate of the Royal Hungarian Chancery.

Thaller, Veterinary Surgeon, Fünfkirchen.

Thalmeiner, Imperial Land Veterinarian, Graz, D.G.

Veith, J. E., Imperial Professor, Vienna.

Vicenti, P., Communal Veterinarian, Roveredo.

Warődy, Naturalist, Kemend.

Werner, John, Dr., Imperial Land Veterinarian, Lemberg, D.G.

Würzel, Imperial Land Veterinarian, Linz, D.G.

Zlámal, M., Dr., Professor in the Imperial Veterinary Institute, Pesth, Delegate of the Royal Hungarian Chancery.

Zwerger, Alf., Veterinary Surgeon, Mondsee.

Zwickl, Jos., Comität Veterinarian, Oedenburg.

Oldenburg.—Greve, Dr., Superior Veterinarian, Oldenburg, D.G.

Poland (*Kingdom*).—Seifmann, P., Professor n the Imperial University, Warsaw, D.G.

Stichel, Rob., Master of Veterinary Science, Warsaw.

Portugal.—De Souza, Joaquim Sabino Eleutherio, Professor in the Royal Agricultural Institute, Lisbon, D.G.

Prussia.—Damman, Dr., Lecturer in the Royal Agricultural School, Proskau.

Dominic, Royal Court Veterinarian, Berlin.

Erat, Departmental Veterinarian, Cöslin.

Furstenberg, Dr., Professor on the Royal Agricultural School, Eldena, D.A.

Hartmann, District Veterinarian, Rybnick.

Hertwig, Dr., Professor in the Royal Veterinary College, Berlin, D.G.

Lüthens, Departmental Veterinarian, Oppelln, D.G.

Mersiwa, District Veterinarian, Leobschütz.

Metzdorf, Veterinary Surgeon, 1st Class, Görlitz, D.A.

Müller, Teacher in the Royal Veterinary College, Berlin.

Naczinski, District Veterinarian, Ober-Glogau.

Renner, District Veterinarian, Steinan on the Oder.

Schell, Departmental Veterinarian, Bonn.

Seer, District Veterinarian, Glatz.

Sesselmann, District Veterinarian, Reichenbach.

Ulrich, Dr., Departmental Veterinarian, Liegnitz, D.G.

Winkler, Dr., Departmental Veterinarian, Marienwerder, D.G.

Russia.—Halicki, Nap , Counsellor of State, Director and Professor in the Veterinary College, Charkow, D.G.

Jessen, Counsellor of State, Professor in the Veterinary College, Dorpat, D.G.

Rawitsch, Professor, Member of the Veterinary Committee, Petersburg, D.G.

Von Undritz, H., Counsellor and Imperial Court Veterinarian, Petersburg, D.G.

Unterberger, sen., Counsellor of State, Director of the Veterinary College, Dorpat, G.G.

Weidemann, Counsellor, Imperial Superior Veterinary Surgeon of the Stud Department.

Saxony (*Kingdom*).—Bräuer, Official Veterinarian, Annaberg.

Haubner, Dr., Royal Medical Counsellor, Director of the Royal Veterinary College, Dresden, D.G.

Just, Privy Counsellor, Chairman of the Commission for Veterinary Affairs, D.G.

Leisering, Dr., Professor in the Royal Veterinary College, Dresden, D.G.

Petzold, District Veterinarian, Chemnitz.

Prietsch, A., District Veterinarian, Leipzig.

Schleg, District Veterinarian, Meissen.

Walther, Ernst, Official Veterinarian, Bautzen.

Weber, Gust., Academical Lecturer and Official Veterinarian, Tharand.

Saxony (*Grand Duchy*).—Werner, Dr., Medical Assessor, Member of the Ministerial Department of the Interior, Jena, D.G.

Sweden.—Lundberg, Fr., Dr., Director of the Veterinary College, Stockholm.

Switzerland.—Dyssli, Veterinary Surgeon, Bern.

Zangger, Director and Professor of the Veterinary College, Zurich, D.G.

Turkey.—Ahmed Effendi, Chef d'Escadron, Professor in the Military Academy, Constantinople, D.G.

Würtemberg.—Dentler, Superior Official Veterinarian, Ravensburg, D.G.

Fricker, Professor in the Royal Veterinary College, Stuttgart, D.G.

Hausmann, Superior Veterinary Surgeon; Nurtingen, D.G.

Von Hering, Dr., Medical Counsellor, Director of the Royal Veterinary College, Stuttgart, D.G.

Hermann, Superior Official Veterinarian, Münsingen, D.G.

Hess, Superior Official Veterinarian, Neresheim, D.G.

Landel, Superior Official Veterinarian, Naumberg.

Marquardt, Superior Official Veterinarian, Göppingen, D.G.

Noll, Veterinarian to the Stud at Scharnhausen.

Rueff, Dr., Professor in the Royal Agricultural Academy, Hohenheim, D.G.

Steidle, C., Superior Official Surgeon, Heilbronn.

Straus, Medical Counsellor, Reporter on Veterinary Affairs to the Royal Medical College, Stuttgart, D.G.

Weiss, Dr., Professor on the Veterinary College, Stuttgart, D.G.

Wetzel, Superior Official Surgeon, Biberach.

Wörz, Medical Counsellor and Court Veterinarian.

FIRST MEETING on the 21st of AUGUST, 1865, *held in the Green Saloon of the Imperial Academy of Science.*

Commencement of the Meeting, 10.30 A.M.

Dr. *Röll.*—Gentlemen: As one of the Committee whom you commissioned in Hamburg to make the preliminary arrangements for the meeting of this Congress, and before I on my own behalf bid you welcome, I take the liberty to introduce to you Dr. von Well, Ministerial Counsellor, who is here as representative of the Ministry of State, and who wishes to address a few words to you.

Dr. *von Well.*—Gentlemen: Devastating animal epidemics cause great losses, not only to individual cattle proprietors and parishes, but to whole countries, and largely tend to undermine their prosperity, and this the more, when these countries are chiefly engaged in agriculture and the breeding of cattle. This is the case with the eastern provinces of the Austrian empire. In consequence, the Austrian Government, for some time past, introduced veterinary police measures, to prevent the development of animal epidemics within the country, to prevent likewise their importation, and to limit or exterminate those epidemics which already exist. Most painful losses have been inflicted in a great part of the Austrian empire by Rinderpest. The Rinderpest, an animal epidemic, which never originates in our country, spreads from its home, which is situated to the east of Austria, either passing in its course through the Principalities or entering into Austria direct from the Russian frontier, and causes here great damage and loss. The Ministry of the Interior therefore, revised in 1859 the then existing directions of a veterinary police nature, promulgated and published these revised orders, and insisted on their being carefully put in practice. But the result was not in accordance with the expectation, and the inability to prevent the reappearance of this virulent epidemic became apparent; it has not only spread again in the eastern provinces of the empire, and swept away thousands of cattle, but it has likewise commenced to spread to the southern and western parts of Austria. In consequence, the Ministry of Commerce has been induced to again revise the directions for guarding against this epidemic. This Ministry nominated a commission, which consisted of delegates from the central places, and of competent judges from those parts where the epidemic has caused the greatest amount of damage. This commission submitted an elaborate report to the Ministry of State, accompanying it with a request, that measures proposed therein to arrest the epidemic should be adopted. The Ministry of State made use of this report as a basis for more detailed laws, which it promulgated; but to issue stringent and inflexible regulations was found to be impracticable, because the Ministry did not consider it advisable to introduce the most important point, namely, to reduce the then existing quarantine against Rinderpest of twenty-one days to ten days, without having the assent to this measure from the Governments of those neighbouring countries, situated north and west of Austria. The Ministry of State was just on the point of ascertaining the views of those governments by means of correspondence, when it learnt that an International Congress of Veterinarians would assemble in Hamburg. It profited by this opportunity to send, with the consent of the Emperor, the well-known Director of Studies of the Imperial Veterinary Institute, Dr. Röll, to this Congress, to relate the experiences of the

Austrian veterinary police. By this means, the question of a reduction of the quarantine period was at once made a subject for deliberation. The discussion on this subject showed that a majority was certainly in favour of reduction, but an unanimous vote could not be obtained. But, as the representative of the neighbouring kingdom, Prussia, was more especially opposed to the reduction, the scruples of the ministry regarding the introduction of this limitation were not removed by the opinion of the majority. The Ministry of State was therefore very glad, when it was made acquainted with the resolution of the Hamburg Congress, which Austria considers an honour, that the next International Congress of Veterinary Surgeons would be held in Vienna, and the Ministry of State considered it a matter of great moment to obtain from his Majesty the imperial assent for the accomplishment of this resolution, which assent was given in April of last year. I have now the honour to bid you, Gentlemen, on behalf of the Ministry of State, welcome to Vienna; and I cannot suppress the wish, that the assembly may be pleased to resume the discussion on the reduction of the quarantine period. I am in hopes that, after a careful consideration of the already collected facts, the assembly will come to an unanimous decision about a principle, which will serve as the basis of one of our most important veterinarian-police laws. I know very well that this assembly intends to extend its sphere of operations, so far as to propose principles for laws, which could be employed against all temporarily prevalent animal epidemics, amongst which the Rinderpest, which often devastates the western part of Europe, will not occupy the most obscure place. I am firmly convinced that this Congress, if it proceeds in its deliberations with the same profoundness and with the same tranquillity as the assembly in Hamburg, will prove beneficial, and approach its ultimate aim, and will be entitled not only to the gratitude of Austria, but to that of the whole of Europe.

Dr. *Röll.*—The representative of the Ministry of Commerce and Agriculture, Ministerial Counsellor, Dr. Pabst, wishes, Gentlemen, to address some remarks to you.

Dr. *Pabst.*—Honoured Gentlemen: As representative of the Ministry of Commerce and Agriculture, which has so great an interest in your deliberations, I likewise take the liberty to give you a hearty welcome on behalf of the ministry just named. We promise ourselves from the deliberations, which so many learned and practically experienced gentlemen are about to commence, the most favourable results. They concern a most important part of national economy, which is continually opposed in its development and progress by a creeping serpent—namely, the devastating epidemic diseases. It needs only be remembered, that in the Austrian empire, the capital invested in cattle is more than 1000 millions of florins, and that deplorable consequences are produced, on account of this important national economic capital being prevented from increasing, and even reduced from its normal amount, by these devastating diseases, which appear now in one place, now in another. Therefore, gentlemen, do we expect from your counsel and assistance, an important support for the future, a stay on which we may depend, and from which we may strive towards a better and higher aim. I fear, gentlemen, you will find many things touching your profession—for example, organization of veterinary institutes, or veterinary police—not quite so developed as you expected. For this we claim your indulgence. The shoe pinches us in many places; we know very well where it pinches, but we are not able to rid ourselves of the pain on every place at the same time. But we have good intentions; I believe we are progressing and not retreating. We stand in want of your advice and of your assistance in many respects, and are not ashamed to hear and accept it gratefully. Personally known to many of the gentlemen from neighbouring countries who are here present, I take the liberty to give my old friends and companions an especial hearty welcome, and recommend myself to your further consideration.

Dr. *Röll.*—Honoured Gentlemen: The manifold new relative positions, which fifty years back were scarcely dreamt of, into which States separated from each other by great distances have been brought by means of the continually-increasing facilities of communication, have originated a desire to obtain common laws for all, which will regulate and simplify intercourse and stimulate the different branches of human activity. By the formation of international societies and the ratification of international treaties, this desire has to a certain extent been taken into consideration. Thus, less difficult intercourse has given to the traffic in cattle and animal produce a greater field; but, at the same time, it has rendered possible the spread of contagious animal diseases far beyond the limits of their original place of development and from these agencies such diseases have already made their appearance in regions where until now they were either utterly unknown, or where they had only been casually observed as accompanying historical events, especially wars. So long as the intercourse was mainly of a local character, the enforcement of veterinary police measures, such as every larger or smaller state made for its own use, might have been considered sufficient to confine certain contagious animal diseases within prescribed limits; but at present, where herds and animal produce, to satisfy the demands of commerce and to be a source of profit to their owners, travel and are sent great distances in the shortest possible period—when States, which obstruct the intercourse, run the risk of being soon and permanently excluded from the market, everyone will be convinced that a mutual understanding between the different governments becomes a matter of necessity, so that effective measures may be taken to prevent the introduction and spread of animal epidemics, and means adopted for their extirpation. A question deserving the most serious consideration would therefore be, how to bring the operations of a strict veterinary police into harmony with the laws which regulate free intercourse, so as to decide how much the one must and can sacrifice to the other for the sake of the national welfare. But who should be better able to determine these principles than an assembly of competent judges from the different States of Europe, who have arrived at the height of veterinary science, and are well acquainted with the wants and conditions of the agriculture and intercourse of their own countries? It was therefore a happy thought, rich in results, which was originated by Professor Gamgee, of Edinburgh, and recognised in its entire bearings by Medical Counsellor von Hering, of Stuttgart, at the time of the International Agricultural Exhibition at Hamburg in 1863, to invite veterinarians from all parts of Europe to meet in the same place, to produce statistics of animal epidemics, to deliberate on general veterinary police measures for overcoming the principal epidemics, and to submit these to the different governments. Beyond expectation, numerous gentlemen from different States of Europe responded to this invitation; not one of them will have forgotten the fraternal spirit in which an abundance of suggestions were laid before the assembly; the sincerity which marked the discussion of important questions of veterinary police, the official report, published by the first president, Dr. von Hering, and the secretary, Regimental Veterinary Surgeon Probstmayr, gives abundant proof. What amount of consideration the motions proposed to the first Congress have received, or if some of them have already been practically tried, some members will perhaps be able to state. But, as a proof that the activity of the first Congress, its public utility, extensive bearing, and endeavours full of results, have been acknowledged, I may state that the Emperor has given permission that the meeting of the second Congress may take place in Vienna, which town had been decided on by the first Congress; and that the ministers and other high functionaries have promoted the endeavours of the preliminary committee in every respect, and in the most liberal manner. On behalf of this Committee, I beg leave to express for this our respectful thanks. As a further proof that the endeavours of the first Congress have been acknowledged, I may mention the great number of governments of different states of Europe, many veterinarian and agricultural colleges and societies, which have sent delegates to this second Congress, at present here assembled; and that it is graced by a great many men, distinguished alike by their scientific acquirements and practical performances. On behalf of the Committee, which was commissioned in Hamburg to make the preliminary arrangements for the meeting of this second Congress, I bid you all respectfully and most heartily welcome, and wish to your deliberations the best progress. In this assembly we miss several worthy colleagues, whom we learnt to honour and esteem in Hamburg; causes of different kinds may have occurred, which rendered their attendance here impossible. My honoured colleague, Professor Pillwax, will communicate to you at a later period some letters bearing on this subject. Death has removed from amongst us one of the most zealous members of the first Congress, whose scientific knowledge will be sorely missed in the discussions of this Assembly. I believe I have the concurrence of the Assembly when I express the regret felt at the death of our learned and honoured colleague Nicklas, late Professor in the Veterinary College in Munich. Without having the slightest intention to forestall the decision of the Assembly with regard to the selection of questions for discussion, the Committee consider it their duty to submit to you several subjects for deliberation, which seem to them of great importance:

1. At the second meeting of the Hamburg Congress, it was resolved by a majority, based on the experience gained especially through the exertions of Russian veterinary surgeons as to the incubation period of Rinderpest, to admit the possibility of a reduction of the quarantine period of twenty-one days for horned cattle coming from Russia and the Danubian Principalities, and intended for the west of Europe. But a decision as to the lowest possible number of days for this regulation was not arrived at. The great importance which this decision would have in regard to regulating the entire animal quarantine system, and the possibility of thereby preventing the smuggling of horned cattle along the far extending eastern frontier of the Austrian empire, justified the Committee in again recommending this subject for discussion; more especially as experience on the subject of the incubation period of Rinderpest has been largely augmented during the past two years, and the conditions of animal quarantine have, by the continually increasing intercourse, been found to be inadequate. The question, how to proceed with regard to international commerce with animal produce during the prevalence of Rinderpest in any country, so as not to come into collision with the duties of the veterinary police, and not to interfere with trade, was left undecided in Hamburg. By increasing reciprocity, which knows how to remove every obstacle which impedes free intercourse, the state of health of native cattle renders it important to regulate the legal importation of the raw produce of such animals, in the least vexatious manner, but at the same time fulfilling all conditions required by rational veterinary police measures. Alleviations of the at present existing directions, which should be admitted by the Assembly as practicable, will be gratefully received.

2. The necessity of a veterinary police supervision of the conveyance of cattle by railroads was generally recognised in the fourth meeting of the first Congress. But the requirements of the veterinary police with those of free intercourse and an unimpeded railway traffic, not unfrequently come into collision. To discover modes which might reconcile these often very opposite requirements, which would impede as little as possible free intercourse, but at the same time protect the native cattle as much as possible from the chance of contagion, through transport cattle, would be a worthy theme for the deliberation of the Assembly. Amongst the measures which in relation to this subject must be considered, a uniform system for the disinfection of railway waggons used for the transport of cattle occupies a prominent place.

3. During the last few years, numerous reports from different parts of Europe about the extended appearance and prevalence of hydrophobia have reached us. The measures which have been adopted to prevent the development, as well as the spread of this, even for human beings, terrible disease, in the different countries of Europe, are, although proceeding from the same cause, very unequal, and of different value. Although an opinion which prevails that hydrophobia is not a specific disease and cannot be transferred to human beings, may make one or more proselytes, yet I hope this will not prevent you, Gentlemen, from deliberating upon measures which may seem necessary to place limits to the development and spread of this disease, and to form a foundation whereon to build practicable and rational regulations regarding dogs.

4. Even now a striking diversity exists in the laws of warranty in the various States of Europe, as regards those diseases and defects of domestic animals which are counted as redhibitory defects, as well as the time of guaranty which is fixed for them. Although during the last few years, in various states of Germany, especially Southern Germany, warranty laws have been promulgated more in accordance with the present state of veterinary science, and therefore more uniform, yet inequality in this branch of legislation is still nearly the rule, to the great detriment of international commerce with cattle. Should this Assembly, which has so many prominent men connected with veterinary science among its members, agree as to which of

those morbid symptoms should be acknowledged generally as redhibitory defects, as well as the duration of the guaranty period, it is to be expected, not without reason, that its resolutions will find consideration, and will be accepted by the legislatures as bases for further proceedings.

The Committee begs the Assembly to consider whether it is advisable to enter at once into the full deliberation of these subjects, or whether it would not be better to form select committees for their discussion, whose duty it would be to report results to the general body. A subject for consideration would likewise be the formation of sections for separate branches of veterinary science; this was mooted at the Hamburg Congress, and it is now necessary to determine what course to pursue. On behalf of the preliminary Committee, I beg you, Gentlemen, to constitute the Congress by electing a chairman and secretaries, and herewith declare the Assembly opened. Professor Pillwax will make a few official communications.

Dr. *Pillwax* having read over the names of those gentlemen who had been sent by their Governments as delegates to the Second International Congress of Veterinary Surgeons said: I have to inform you, that subscription lists are opened in the reception-room, wherein all gentlemen intending to take part in the excursions to Hungarian Altenburg, Kladrub, or Lipizza, are requested to inscribe their names, in order to communicate in time with His Excellency the Master of the Horse, Count Grünne, who will issue directions to the Archducal management of the estates. I have also to ask a question in reference to the price of the tickets of admission. We have been enabled by the most liberal assistance of our Government to liquidate all expenses in connexion with the printing of the programme, for the stenographic reports of our deliberations, &c.; but printing the stenographic reports and sending them to the individual members will require funds. To meet these necessary expenses, the Committee take the liberty to propose a subscription of about the same sum as agreed on at Hamburg (two thalers), namely, three florins Austrian currency, and begs the Assembly to state its opinion on the subject.

Dr. *Röll.*—I take the liberty to introduce to you Counsellor Dr. Theodore von Helm, as representative of the Mayor.

Dr. *Th. von Helm.*—Gentlemen; about a quarter of an hour ago, the Mayor expressed a wish to give the Assembly a hearty welcome, and commissioned me to do so on his behalf. I trust you will excuse me, if I fail in any way to do this, as you, Gentlemen, deserve. Having the honour to be Chairman of the Sanitary Section of our Municipal Council, I therefore more readily accepted the commission of our Mayor, as the business of this section of our Council is in close connexion with the end and aim of your Assembly. You deliberate on subjects which are of the highest importance, not only to the general welfare but also to individual prosperity. Regardless of the fact that Vienna, as a city, feels the reflex of everything concerning the weal and woe of mankind in general, and salutes the one and mourns over the other, there are at present many subjects of interest which engage the attention of the city. I take the liberty to mention that the Sanitary Section has seen with satisfaction that hydrophobia forms part of your programme. With regard to hydrophobia and the keeping of dogs, the Municipal Council has been engaged during several years devising measures, and would some time ago have come to a decision, but it was anxious not to exact too much on the one hand, and also, from the great importance of the subject, not to treat it, even apparently, superficially, and thus be open to the charge of infringing individual rights. Therefore the present Assembly, by their deliberations, will contribute to a final decision on this subject. I repeat, I gladly execute the commission of the Mayor, and bid you most heartily welcome.

Dr. *Röll.*—I now take the liberty to propose that the Assembly proceed to the election of office-bearers. This may be done by means of voting-papers, and, for the purpose of verifying the result of the election, four or five scrutators ought to be nominated. But, to allow the Assembly to enter at once into the deliberation of the subjects submitted for discussion, the verification may take place in another room, and in the mean time the former President, as senior, could take the chair.

Dr. *Hertwig.*—Honoured Gentlemen; the Committee has taken so much trouble, and has executed its task with such care and skill, that we could not do better than leave the presidency, vice-presidency, and secretaryships in the same hands. If therefore Director Röll and his colleagues are not overburdened and fatigued with their avocations, I would like to express a wish that we should by acclamation elect them to the vacant offices, namely, Director Röll, President; Dr. von Hering, who was president of the first Congress, as a mark of honour, Vice-President; and the other two gentlemen to the vacant Secretaryships. If, Gentlemen, you agree with me, follow my example and raise your hands. (Applause and unanimous raising of hands.)

Dr. *Röll.*—I should like to remind all present that the duties of the president and secretaries may conflict with their obligations as members of the Committee. I believe there are some things still to be done by us, as members of the Committee, which could not well be done by the president and secretaries. I beg further to remark that the result would certainly be more satisfactory if we sacrifice a quarter of an hour, and use voting-papers. I acknowledge the honour you have done me, and so do my colleagues; but I believe a more secure and seemingly less partial result would be obtained by means of a regular election, as such a course would not impede our proceedings, because, as I previously stated, our former president would doubtless consent to take the chair in the mean time.

Dr. *Hertwig.*—In my opinion, the election would produce no other result than that already obtained by a show of hands. I acknowledge we would scarcely be justified in electing Messrs. Pillwax and Müller to the secretariate, because they are much occupied with other business; but in reference to both presidents, I should like, if gentlemen agree to it, not to withdraw my motion, and I believe that the presidents would best be able to propose gentlemen as secretaries. (Assent.)

Dr. *Hering.*—I thank you heartily for your confidence; but I confess I did not come here with the intention of accepting either the office of president or even vice-president; besides I believe the vice-presidentship is entirely superfluous.

Dr. *Röll.*—I must contradict this observation, and remark that Dr. von Hering was the very person who during the first meeting of the Congress in Hamburg proved clearly the necessity of having a vice-president. (Laughter. Cries of "bravo!") The election does not appear completed. (Renewed acclamation; cries of "certainly.")

Dr. *Röll* then took the chair, and Dr. *von Hering* the place of vice-president.

Dr. *Röll.*—Gentlemen, accept my thanks for your confidence in me. I hope to justify your election by my zeal. Now, as the presidents have been elected, I beg leave to observe that with regard to the election of secretaries, Professors Müller and Pillwax should first express their opinion if they are in a position to undertake the duties connected with that office.

Dr. *Pillwax.*—We are so much occupied as members of the Committee that, although we feel honoured, we could scarcely execute the duties of secretaries to your satisfaction.

The *Vice-President.*—I believe there are some younger members present, who could be induced to undertake the secretariate.

The *President.*—I would propose, if the two gentlemen named do not accept, Professor Forster from Vienna, and one of the secretaries from the former Congress—either Regimental Veterinary Surgeon Probstmayr or Professor Fürstenberg—as secretaries. I believe Professor Forster will be kind enough to accept this office.

Dr. *Forster.*—I will do so with pleasure.

The *President.*—And Regimental Veterinary Surgeon Probstmayr?

Dr. *Probstmayr.*—If gentlemen have been satisfied with the execution of my duties on a previous occasion, I will undertake those duties again.

The *President.*—The Executive Committee is herewith constituted.

The *Vice-President.*—I take the liberty of claiming the attention of gentlemen for a moment. In Hamburg every member made a small contribution to cover the most indispensable expenses. Out of these subscriptions everything has been paid which was necessary; even the official reports have been sent prepaid to the members; nevertheless, there remained a surplus of 100 thalers, which I invested in a state-paper, and which I herewith hand over to you. In the mean time, a sad occurrence took place, as was mentioned previously; our colleague Nicklas has been taken from his wife and children, and has left them in circumstances which render it necessary that they should be assisted. Therefore, I take the liberty to propose that this small amount should be handed over to his widow and orphans. (Assent and applause.)

Dr. *Hertwig.*—I take the liberty to move the following amendment. As the two thalers which were paid in Hamburg by a lesser number of members were not only sufficient to cover all expenses, but even left a surplus, it is to be supposed that the same amount which is proposed to pay this time, and to which doubtless all members will agree, will likewise be sufficient to pay all expenses and leave a surplus. Should this be the case, I propose to add this surplus to the other 100 thalers, and to use them for the same purpose. (Applause and assent.)

Dr. *Probstmayr.*—As guardian of the orphans of Professor Nicklas, I beg to express my heartfelt thanks, and to assure you that they are really good children, and deserve assistance. None of them are provided for.

The *President.*—I now put the motion of my colleague, Professor Pillwax, to the vote, that "gentlemen will pay for the printing and sending away of the report of our proceedings three florins Austrian currency, as subscription." Do you agree to this, gentlemen? (Assent.) I then request that gentlemen will be kind enough to nominate, as was done at Hamburg, a cashier to receive these subscriptions. In Hamburg Mr. Schrader, junior, who resides there, acted as treasurer, and I believe it would be best to follow the same course, and nominate a gentleman residing in Vienna to fill the post. I understand that gentlemen agree to the motion of Mr. von Hering, and to the amendment of Professor Hertwig, that a possible surplus derived from the subscriptions to this present Congress should likewise be handed over to Mr. Probstmayr, to be used for the widow and orphans of the late Professor Nicklas. If gentlemen agree to this, they will intimate their assent by rising. (The motion and amendment were adopted.) Professor Forster will perhaps undertake, besides his duties as secretary, to receive the subscriptions, and I request gentlemen to pay to him the amount, producing at the same time their tickets. I now put the question, which has been indicated before—"if gentlemen consider it desirable to enter at once into deliberation on the four subjects contained in the programme"—to the vote. In my opinion it would be better if we entrust these subjects for preliminary deliberation to separate Committees, which Committees, as the subjects are of international importance, ought to consist of gentlemen from different countries. I believe that if from seven to nine gentlemen deliberated first on these questions, it would be easier afterwards to agree on certain motions, on the basis of which a discussion before the entire Assembly would commence. I am convinced that the four subjects on the programme, at least some of them, admit of such extended treatment, that it would be scarcely possible to come to a final decision within the six days' duration of our deliberations, should we proceed, *in pleno*, at once to their discussion. Besides, these four points of the programme are not the only subjects for discussion, as I have learnt several other debates on important questions will be raised by members of Congress. I now request those gentlemen who wish to speak on this subject to do so.

Dr. *Gerlach.*—I consider it very important and necessary that such important subjects should first be deliberated upon by Committees, and that their resolutions should afterwards be submitted to us. By this means we shall proceed quicker and better to the desired end, and will be able to adopt more mature and uniform resolutions. I am in favour of the motion. With regard to the fourth subject of the programme, I beg leave to submit to the President a project, accompanied by a request that the same may be handed over to the Committee for investigation, because this subject is of so great importance and extent, that without a preliminary discussion it could scarcely be decided. It would likewise be to the purpose, if the Committee consisted of members from different countries, so that the interest of each separate State may be duly guarded.

The *President.*—The project submitted by Professor Gerlach concerns the base of a common law of warranty; that is the fourth subject.

Dr. *Szabó.*—Therefore the project ought to be handed over to the Committee which deliberates on the fourth subject.

The *President.*—We have first to decide whether Committees for preliminary discussions are to be nominated or not.

Dr. *Szabó.*—I meant to say to give it to the Committee at the proper time.

The *President.*—As no other gentlemen desire to speak, I ask the question: Do gentlemen agree to the motion, that for the preliminary discussion of the four subjects of the programme Committees consisting of a limited number of gentlemen should be formed, whose duty it would be to discuss the question in all its bearings, propose motions, and bring these to the knowledge of the plenum? All gentlemen who are in favour of this motion will rise. (The whole assembly rises.) The motion is adopted.

Dr. *Gerlach.*—It would perhaps be to the purpose to submit that gentlemen voluntarily become members of one or other of the Committees without being elected.

The *President.*—But we have to pay some regard to different countries.

Dr. *Wüst.*—With regard to the fourth point, several states have appeared with a sketch of a new warranty law. For one, the Grand Duchy of Hesse, where two years ago I advocated the new warranty law in the Landtag; I believe also Würtemberg and Baden. I consider it necessary that a member from each of these countries be elected into the Committee.

The *President.*—This will be left entirely to the decision of the Congress. It would be likewise desirable that opinions on the number of Committee members be expressed; too many members, I fear, will not tend to promote the object in view. I believe that five or seven members would be the fittest number.

Dr. *Zangger.*—I do not think that members of these Committees should be drawn from the entire Assembly. They ought to be formed by careful selection; and I am of opinion that the president, vice-president, and the secretaries, would be well qualified, with the help of the list of members, to select these Committees; they could then pay due regard to the different countries, and also to the abilities of individuals, because those selected as members of these Committees would be sufficiently known to them. By this means we would obtain better qualified Committee-men, and would escape a tedious election. I think, therefore, it would be better to leave the selection of members for these Committees in the hands of the Committee of the Assembly.

Dr. *Müller.*—I think our honoured president should be kind enough to introduce the first subject, and afterwards the Assembly might elect, with especial regard to the different countries, the Committee. When the first is elected, we might proceed with the second, and so forth. But if we commence with the four questions at once, the whole affair will become complicated and obscure.

Dr. *Wüst.*—If the Committees are elected at once they will have time to work, and this they must have.

The *Vice-President.*—Otherwise each Committee would have only one day for its deliberations, if the first Committee were elected to-day, the second to-morrow, &c., &c.

Dr. *Gerlach.*—I believe it would be better to decide to-day on all four Committees.

Dr. *Bleiweis.*—I agree with the motion of Director Zangger for this reason, that otherwise we should scarcely make any progress. The president has expressed a wish that the members composing the Committees should not be too numerous, or they would impede each other. With this remark I entirely agree. But, on the other hand, he has likewise expressed a wish that, if possible, all countries should be represented. Well, I scarcely think it would be possible to have a Committee of seven or nine members representing all countries; but then, and this is the principal point, the Committee should especially contain men who have more or less practical experience in one or the other direction. Now we are here, and I say so with joy, numerously represented, but we scarcely know each other. How then shall we elect? I therefore second the motion of Professor Zangger, and leave the selection in the hands of the Committee of the Assembly.

The *President.*—There are two motions before the Assembly. One, by Professor Zangger from Zurich, is to the effect that the Committees which have to deliberate upon the subjects of the programme shall be nominated by the office-bearers of the Assembly. I believe I had better put this motion to the vote first; gentlemen who are in favour of this motion will please to rise. (They rise.) There is evidently a majority. The counter-motion, to the effect that the Committees shall be elected one after the other, is therefore lost. If I formerly mentioned that the members of Committees should not be too numerous, but that nevertheless different States should be represented, I did not intend that every State should have a representative, otherwise the representatives of the States of Germany would alone render it impossible to have a small Committee. I intended that only the principal groups of States, especially those which have delegates here, who are possessed of great theoretical or practical experience in one or the other speciality, should be represented. The number of members for the separate Committees, I, of course, cannot determine; perhaps one of the gentlemen will propose a motion in this respect, which I could put to the vote.

Dr. *Pabst.*—It is not my intention to submit a motion to the Assembly, but in the interest of the Assembly I beg to draw attention to the manner which is employed by the election of Committees of the Agriculturist Society, which has now existed nearly 30 years, and which mode of election answers very well. The office-bearers of the society nominate according to their best ability about one-half of the members of the Committees—say five. These Committees are at liberty to add five others to their number, and they know what is wanting to render their Committee complete and efficient, and whom to select.

Dr. *Hertwig.*—The proposition of Ministerial Counsellor Pabst seems to me a good one. I perfectly agree to it.

The *President.*—For which number does the Assembly decide? (Cries of "five," "seven," "nine.")

Dr. *Haubner.*—Seven or nine are too many.

Dr. *Pabst.*—The number fixed by the Society of Agriculturists is five.

Dr. *Gerlach.*—Five.

The *President.*—If there is no opposition to five—(nobody opposes)—it appears to be adopted. I think it would be best for the purpose of the composition of these Committees to have the list of the names of members autographically multiplied.

Dr. *Haubner.*—I am sorry I must oppose this proposition. It seems to me rather clumsy and roundabout; the consequence of its adoption would be that we could not commence our deliberations before Wednesday or Thursday next. I believe the gentlemen are to a certain extent known, and if three, four, or five are nominated for each Committee, then the Committees selected could do the remainder without assistance from the Assembly.

The *President.*—We shall now commence with the construction of the first Committee, which has to deliberate on fixing the quarantine period for horned cattle coming from Russia and the Danubian Principalities into Austria, and the commerce with animal produce at a time when Rinderpest is prevalent in a country.

Dr. *Haubner.*—I am not bashful, and propose myself as the first member of this Committee.

The *Vice-President.*—I believe those gentlemen who are personally acquainted with Rinderpest, especially those from Russia, Prussia, and Austria, and, if five are to be nominated, from Saxony and the neighbouring countries, would be the most capable to deliberate on the first subject. Those who are from countries situated at a greater distance, have, thank God, had no cause to make acquaintance with Rinderpest. From Saxony, Medical Counsellor Haubner has signified his readiness; from Prussia, perhaps Professor Hertwig would do the same. (For Russia, Counsellor of State Unterberger and Professor Rawitsch; and for Poland, Professor Seifmann, signified their readiness to serve on this Committee.)

Mr. *Ernes.*—Excuse an Englishman when he expresses a desire to be a member of this Committee. We have at present Rinderpest in England, and I believe it might be useful were I a member of this Committee.

The *President.*—Mr. Ernes for England. Dr. Werner from East Galicia will doubtless represent Austria.

Dr. *Zangger.*—I believe we have in accordance with my motion resolved not to elect, but to leave it to the Presidents Röll and Von Hering, and to the Secretaries Forster and Probstmayr, to nominate the Committees. Therefore, I do not think gentlemen are at liberty to propose themselves.

Dr. *Ulrich.*—I beg to propose the adjournment of these deliberations for half an hour, that the presidents and secretaries may have an opportunity to select those gentlemen from the list of names, whom they consider best adapted to serve on the separate Committees, and to select gentlemen at once for the first Committee, as they have to commence their labours immediately. We might re-assemble again in half or three-quarters of an hour, and the deliberations could then proceed. (Assent.)

The *President.*—If gentlemen agree to the adjournment of the meeting, they will please to rise. (They rise.) We adjourn therefore the meeting, and I believe a quarter of an hour will be sufficient to form the Committees.

Adjournment at twelve o'clock. After resumption at half-past twelve:—

The *President.*—Gentlemen; in accordance with your desire we have formed the Committees which have to deliberate preliminarily on the four subjects of the programme. The first subject is: "The admissibility of a reduction of the quarantine period for horned cattle coming from Russia and the Danubian Principalities into Austria and the west of Europe, and the determination of the smallest number of days necessary for observation;" likewise the question, "How to proceed with regard to international commerce at a time when Rinderpest is prevalent." To act on the Committee regarding this question, we propose Counsellor of State Unterberger from Dorpat, Professor Seifmann from Warsaw, Land Veterinarian Werner from Lemberg, Professor Zlámal from Pesth, Professor Hertwig from Berlin, Medical Counsellor Haubner from Dresden. I shall take the liberty to introduce the subject to the Committee. If the gentlemen just mentioned have no objection to serve on this Committee they will please to rise. (They rise.) I now beg to propose that this Committee, in order not to interrupt the daily meetings of the Assembly, should commence its deliberations this evening, so as to be able to submit a report to the meeting of the Assembly to-morrow. For the deliberation of the second question, regarding "The supervision of the cattle transport on railways, and the necessary disinfection of the railroad waggons which have been used for the conveyance of cattle," we propose Professor Müller from Vienna, who has already prepared an introduction to the subject, Director Zangger from Zurich, Professor Rawitsch from Petersburg, Professor Reynal from Alfort, and Professor Perosino from Turin. This Committee likewise would have to meet soon to be able to submit, perhaps the day after to-morrow, a report to the Assembly.

To introduce the third subject, Professor Pillwax from Vienna has signified his assent; the following gentlemen have been proposed to act on the Committee:—Medical Counsellor Fuchs from Karlsruhe; Counsellor of State Jessen from Dorpat; District Veterinarian Sondermann from Münich; and Professor Husson from Brussels. With regard to the fourth question, treating on redhibitory defects, Dr. von Hering from Stuttgart has undertaken the introduction of the subject; the following gentlemen have been proposed to serve on this Committee:—Director Gerlach from Hanover, who has presented the memorial with regard to this subject; Police Veterinarian Adam from Augsburg; Mr. Ernes from London; and Land Veterinarian Professor Dr. Bleiweis from Laibach. Perhaps the gentlemen would come to an agreement with Professor Müller, Professor Pillwax, and Dr. von Hering about the place, day, and hour of meeting; and I would suggest that the labours and deliberations of the Committee should be so arranged that every succeeding day a subject should be read for the discussion of the Assembly *in pleno*. According to the resolution of the meeting, each Committee is at liberty to invite gentlemen, whose presence is desirable, to its deliberations; and I believe every member of the Congress may be present at the meetings of the Committees, if the accommodation permit it. I now beg to ask, at what time, commencing to-morrow, shall the meetings of the Assembly take place; it would perhaps be possible to commence at nine o'clock. (Cries, "That is entirely the business of the President.")

Dr. *Pabst.*—I believe it would be better to commence at ten o'clock, to give the Committees time for their deliberations.

Dr. *Haubner.*—To-morrow we might commence, on account of the first Committee, at ten o'clock; the other meetings ought to commence at nine.

The *President.*—Those gentlemen who are in favour of the commencement of the meetings at nine o'clock will please to rise. (They rise.) It is the majority.

SECOND MEETING, 22nd AUGUST, 1865.

President, Dr. RÖLL; *Vice-President*, Dr. VON HERING. *Secretaries*,
Drs. FORSTER and PROBSTMAYR.

The *President.*—Professor Forster will have the kindness to read the minutes of the proceedings of yesterday.

Dr. *Forster* reads.

The *President.*—Are there any objections against the correctness of the minutes? (After a pause.) As this is not the case, I consider them adopted. The members have received a list of the names of those gentlemen who were present here yesterday, and who had given in their names to Professor Forster. I request those gentlemen who have observed any mistake in the title or spelling of their names to communicate it, either to the stenographic officials, or to one of the secretaries, and it will be corrected. For those gentlemen who arrive at a later period of our sittings a supplementary list will be prepared. Professor Pillwax, as a member of Committee, has to make a communication, after which we will proceed to the order of the day.

Dr. *Pillwax.*—We yesterday received two communications. The first from the Society of Veterinary Surgeons in Liége, in which the society expresses its thanks for the invitation from the Committee to take part in the Congress, and regrets that none of its members, because of pressing engagements, will be able to be present. The society also expresses a wish to have a report of our proceedings sent them. Secondly, Professor Falke sent a pamphlet entitled 'What has Veterinary Science to accomplish at the Universities?' &c. This pamphlet is at the disposal of the members in the reception room.

The *President.*—I now request Professor Hering to take the chair, as I shall have the honour, as reporter, to place the views of the Committee on the first subject in the programme, before the Assembly. (Vice-President von Hering takes the chair.)

Dr. *Röll.*—Gentlemen; the subject which occupies us to-day has already been mentioned at the Congress in Hamburg. It is in reference to the reduction of the quarantine period existing at present in the quarantine establishments on the eastern frontiers of the Austrian empire, for the purpose of preventing the introduction of Rinderpest. I had the opportunity in Hamburg, assisted by statistical notes, which clearly proved the extension of Rinderpest in Austria, and the probability of an existing smuggling trade with horned cattle on the frontiers, to learn the views of the Assembly about the possibility of reducing the at present existing quarantine period, which is very long, should a due regard for the health of the native cattle permit it. Different views were expressed. The majority of those who took part in the debates admitted the correctness and reliability of the experiences acquired in reference to the incubation period of Rinderpest; but some of the members did not consider the experiences sufficient to induce an alteration of the system in cattle quarantine establishments; a system which has existed so long and which has proved itself efficient, at least it was pretended that it had done so. After a discussion which occupied nearly two meetings, the following modified motion of Director Zangger was put to the vote: 1. Are the experiences gained up to the present time sufficient to induce the belief that the period of the incubation of Rinderpest does not extend beyond nine days? and if this should be affirmed, 2. Could then, based on this belief, the quarantine period of twenty-one days, for the prevention of the importation of Rinderpest, as far as it depends on the incubation period, be reduced? Professor Hering put these two questions to the vote; both were answered in the affirmative by a majority, and, as I had the honour to remark yesterday, the possibility of a reduction of the quarantine period of twenty-one days against the importation of Rinderpest by Russian and Moldo-Wallachian cattle was acknowledged. But as to the lowest number of days to which this observation-period could be reduced, the Congress did not come to a decision. It now appears indispensable, if it is intended to make any progress on this question, that a certain base should be determined upon, which might serve as a rule of action for the future regulation of the so-called quarantine period for cattle. Beyond the remark that a reduction of the quarantine period is admissible, nothing practical was agreed on. The preliminary Committee therefore placed this subject, couched in more decided language, on the programme, and yesterday a Committee meeting, for the thorough deliberation, and, if possible, for obtaining a resolution with regard to it, took place, the final result of which I shall have the honour to report to you. There were present at the meeting of the Committee: Dr. Haubner from Dresden, Dr. Hertwig from Berlin, Professor Seifmann from Warsaw, Counsellor of State Unterberger from Dorpat, Land-Veterinarian Dr. Werner from Lemberg, Professor Zlámal from Pesth, and myself. I shall now submit to you the motions of the Committee, and the discussion with regard to them can afterwards commence. We divided the subject under discussion into two parts, as it likewise appears in the programme. One part was to decide on the lesser number of days to which the quarantine period may be reduced, and the other was to consider those rules which ought to be observed with regard to animal produce as articles of commerce during a time when Rinderpest is prevalent in a country. The Committee, after an exhausting deliberation, was unanimous in recommending the following motions to the Assembly:—

I. The duration of the quarantine period, in consideration of the experiences gained as regards the incubation period of Rinderpest, might, for the cattle coming from Russia and the Danubian Principalities, and intended for the West of Europe, be reduced to ten days; but this period ought to be, under all conditions of health of horned cattle in neighbouring countries, and without regard to the breed and destination of the cattle, strictly enforced.

II. The Committee only advises a reduction of the at present existing quarantine period of twenty-one days when the following preliminary measures shall have been put in practice, namely:—

1. When quarantine establishments shall have been founded in every place where the requirements of commerce render them necessary, and where local circumstances make their existence possible. With regard to the latter, the easy procurement of fodder (but not from neighbouring countries which are suspected of infection) ought to be kept in view; and a sufficient supply of water for watering and cleansing the animals ought to be considered:

2. When quarantine establishments are constructed in such a manner that they satisfy the veterinary police, and tend to the preservation of the health of the animals which are there at the time, and when likewise a reliable veterinarian supervision is permitted:

3. When a sufficient number of well-instructed and salaried veterinary surgeons shall have been appointed to the quarantine establishments.

The Committee also considers it necessary:—

4. To brand every head of horned cattle on its arrival at the quarantine establishment:

5. To disinfect all cattle leaving the quarantine establishments:

6. To introduce a cattle conscription on frontier districts along the eastern border; to appoint veterinary surgeons there for this purpose, and to watch over the state of health of the cattle in the districts:

7. To inspect and supervise most carefully the cattle in the interior of the country:

8. To punish those with the utmost power of the law who evade or contravene the veterinary police laws concerning quarantine and Rinderpest.

III. The Committee considers it especially desirable that the legislature should fix a certain tax for each head of native horned cattle, so that from the proceeds of this tax a fund may be formed for the extirpation of Rinderpest. This fund would render it possible to pay an indemnity for the killing of every sick or suspected animal, and thus the exportation of the disease to the west of Europe might be prevented.

As will be observed, the Committee has agreed to reduce the quarantine period to ten days for all cattle coming from eastern foreign countries, but this reduction is conditional on the previous execution of several measures, which relate to the regulation of the existing quarantine system. I believe it would be better that gentlemen intending to speak on the question should take up this point previous to our proceeding to a division.

Professor *Hertwig*.—Gentlemen; those of you who were present in Hamburg when we discussed this subject, will doubtless remember that I was prominent among the minority by being opposed to the reduction of the quarantine period of twenty-one days, especially on the eastern Prussian frontier. You have heard in the inaugural speech of Ministerial Counsellor von Well yesterday, that they were already to a certain extent decided on this point, but that the opposition of the Prussian representative in Hamburg prevented their coming to an ultimate decision. Those of you who know this, and especially my countrymen, will now be astonished to learn that the Committee, of which I had the honour to be a member, resolved unanimously to recommend a reduction of the duration of quarantine. I consider it necessary to give you explanations to justify myself to a certain extent, and to communicate some causes which, I trust, will partly prevent discussion on the subject. I beg shortly to observe, what all of you, as well as all professional men, doubtless know, that all our measures against Rinderpest are separated into two grand divisions. One division embraces the measures against the importation of Rinderpest beyond the frontiers of the state, and the other the measures for the extirpation of Rinderpest when already in the State. The measures in the first category are in different States differently used. In Prussia, for example, we have on the frontier a quarantine of twenty-one days' duration, when the Rinderpest is not prevalent in neighbouring States. But when neighbouring States suffer from the ravages of the Rinderpest cattle are debarred from entrance into Prussia. The just-mentioned measure has a particular reference to Podolian cattle; other cattle may, at a time when there is no Rinderpest, pass the frontier under very easy conditions. In Russian Poland it is different. There the importation of cattle for killing, even Podolian, is, after a quarantine of twenty-four hours, or at most three days, permitted. But if these cattle are intended for draught or work, the duration of the quarantine lasts longer; if I mistake not, twenty-one days. These differences render difficult the observance of the quarantine. We professional men in Prussia, for example, have often been asked by custom-officials to describe the character of Podolian cattle in such a manner that each officer may be able to recognise them under all circumstances, which is simply impossible, even for one who sees a great deal of these cattle. There are transitions which render the recognition difficult, and many a Podolian head of cattle passes as Hungarian. In Austria again other means are employed, which I, as a foreigner, do not know in detail, but I know sufficient of them to be aware that here quarantine measures are not sufficiently protecting. This I do not say in a fault-finding manner. I am not the first who has expressed this opinion; Director Röll in one of his works has done so before me. If, to make the matter short, the quarantine regulations as they now exist are carried out in different ways, and as in their present condition they do not serve as a protection at all; if, especially, the circumstance which Director Röll mentions, namely, that the smuggling trade is carried on with the greater zeal the longer the duration of the quarantine lasts—because the longer the quarantine, the larger the profit to the smuggler and the greater the inducement to smuggle—if all this is considered, and at the same time the more modern experiences which have remained intact from the International Congress of Hamburg until to-day are also taken into account, it must be confessed that the time has arrived to make an alteration in the present system. This alteration must be such as to produce something better than what we have now. If we now, for example—I speak more especially to my countrymen—if we in Prussia have had until now a quarantine with categories, with diversities, and if we had instead of this quarantine of twenty-one days and less, one with a fixed period for all kinds of all animals, and with a reduced time without any regard to the cattle being Podolian or of a different kind, then I believe we should produce something better. The remainder, Gentlemen, I must leave for your further discussion.

Dr. *Halicki* spoke in favour of the reduction of the quarantine period to ten days. He considered that thanks were due to Her Imperial Highness Grand Duchess Helen Paulowna of Russia, for having founded and endowed an institute for the inoculation of Rinderpest, which had proved of immense benefit to veterinary science and agriculture.

Mr. *Ernes.*—Mr. President; Mr. Spooner, Director of the Veterinary College, wishes to ask some questions with regard to inoculation for Rinderpest. The Rinderpest is at present prevalent in England, and therefore this subject is of great importance. He wished to know if this is a fit time to enter into the subject.

The *Vice-President.*—It does not belong to the order of the day. But when the debates on the other questions are concluded, we may place it on the order of the day. We have now to consider a series of motions by the Committee, and to found resolutions thereon. Then we may consider the question about inoculation for Rinderpest.

Dr. *Tscherning.*—I cannot vote in favour of an alteration of the quarantine period. Science convinces me of the fact that the incubation period does not exceed nine days; but, from practical considerations, I believe the time too short to observe the disease accurately. It is not possible to discover it so early. I am of opinion that, from the fact of their making the reduction dependent on so many conditions, the gentlemen of the Committee were not quite certain as to their decision.

Dr. *Bleiweis.*—Permit me, Gentlemen, to add my mite to the motion of the Committee, that the quarantine period may conditionally be reduced to ten days. In supporting this motion, I would state that, under all circumstances, this ought to be the shortest period, and that perhaps it would be even better to add two days. As the incubation period must always be considered a safe guide in this direction, and since experience has proved that Rinderpest, Sheep-pest, and Goat-pest are identical diseases, this fact would, with regard to the incubation period, be also of great importance. When in 1863 the Rinderpest appeared in Carniola, where I am Land Veterinarian, and at the same time cases of Sheep-pest and Goat-pest occurred, I was commissioned, by the advice of Director Doctor Röll and with the consent of the Ministry of State, to try the inoculation of cattle with the virus obtained from sheep and goats suffering from the epidemic. For this purpose, the Ministry placed at my disposal the sum of 300 florins. I made experiments in two places at different times, but always in the month of July; some I made at Preloka, on the Croatian frontier of Carniola, and the others at Zagorje in the interior of Carniola. Whereas in Preloka the period of incubation of four head of cattle ceased on the fourth day, the result in Zagorje on the Karst was entirely different. Amongst the three head of cattle inoculated there on the 21st of July, one, a cow twelve years old, was taken sick on the ninth day, the 30th of July. This, Gentlemen, to be sure, is only a solitary case, but it has been carefully investigated. We have seen here distinctly that the incubation period extends to nine days. On the ninth day the Rinderpest appeared in a most virulent form, and five days later the animal died. This, Gentlemen, may serve as an argument in favour of the motion of the Committee that the quarantine period must not be reduced to less than ten days; but it may perhaps be worthy of your consideration, if it would not be even better to add, for the sake of greater security and precaution, two more days, and thus transpose the former number 21 to 12. It is not my intention to submit a motion to this effect, but principally to support the motion of the Committee. I thought it best to mention this case, as it well deserves the consideration of the Assembly.

Professor *Jessen.*—You are doubtless aware, Gentlemen, that a long time ago I expressed myself in favour of a reduction of the quarantine period. The honoured gentleman who spoke before me has just mentioned a circumstance which invites us to use great circumspection, because he has proved that the incubation period—on which, after all, depends scientifically the duration of the quarantine—may extend to the ninth day. Experiences of this kind we have already had, and they are still accumulating. In the last report from Raupach (Karlowka), you will likewise find the appearance of Rinderpest on the ninth day. Of 348 animals, 77 fell sick on the fourth day, 149 on the seventh day, 99 on the eighth day, and 23 on the ninth day. I have already directed your attention to the fact that, in accordance with experience, the appearance of the disease does by no means invariably indicate its commencement; but that, especially in steppe cattle, where the Rinderpest generally, but not always, appears in a mild form, the disease may be overlooked during several days, and that the day on which the first symptoms appears is considered the termination of the incubation period. As yet experience points to the ninth day, and I must confess I have not observed a commencement of the disease later than the ninth day. In this respect, a quarantine period of ten days seems therefore amply sufficient. But to this, Gentlemen, is added an evil, which overthrows the whole quarantine system, and which we ought to consider, especially on behalf of those veterinarians who are appointed to quarantine establishments situated on the borders, where steppe cattle pass into countries without steppes. I have always asserted, and here repeat the assertion, that I at least, after the most careful examination, will never maintain with certainty that a herd consisting of 10, 200, 300, or 1000 head of cattle from the steppes, on entering the quarantine establishment, is perfectly sound; neither do I dare conscientiously to assert that it will leave the establishment in perfect health, no matter whether it has been ten or twenty-one days there. Because experience has taught me that the Rinderpest may appear in the steppes in such a mild form, that no veterinarian, be he ever so experienced, will be able to recognise it. I am convinced that even with a quarantine period of twenty-one days the disease might be communicated from animals only slightly sick, or where the disease is not at all discernible, to others who would carry the malady with them from the quarantine establishment. This circumstance, Gentlemen, is of paramount importance, because the Governments require that we should arrive at a positive decision on this question. Whatever we express here must verify itself in time, or the fault will lie at our doors. To do away entirely with quarantine we cannot; it therefore appears to me that, as quarantine must exist, in the interest of the present time, and in accordance with the requirements of commerce, its duration should be reduced to as short a time as possible. I am therefore in favour of the motion for reducing it to ten days. At the same time I must remark that I can never believe that quarantine, even when all the preliminary measures which the Committee has wisely added as conditions have been practically executed, will ever be a perfect protection. This, Gentlemen, is all I have to offer on the subject. I have no intention to oppose the resolutions; on the contrary, I am entirely in favour of a quarantine period of ten days' duration.

Professor *Fuchs.*—Gentlemen; in Hamburg I was in the minority, and voted against the resolution proposed there. I consider it therefore necessary to give to-day an explanation in this respect. I am able to agree, from an Austrian point of view, with the motion submitted by the Section, after we have listened to confirmed experiences about the latent period of Rinderpest, and after experiences have been acquired in Austria with regard to quarantine, which make it highly probable that by a reduced period of quarantine the Rinderpest will be less easily introduced, than has been the case hitherto. But what

I might express were the Rinderpest to advance farther into Germany—what motions I should propose especially with regard to the country whose delegate I am, is, of course, quite another matter. Then a quarantine period of ten days would certainly not satisfy me. The conditions which have been proposed by the Section I consider sufficient, with the exception of one point about which I already spoke in the Assembly at Hamburg. I mean, Disinfection. Only healthy, or apparently healthy, cattle are admitted into the quarantine establishments, and until now only one disinfection of the human beings, animals, and articles in the establishment has taken place, namely, when they have left it. From this I infer that only one disinfection on leaving the establishment should take place. But it is well known that the infecting substance of Rinderpest is possessed of great tenacity. Although the animal may remain healthy after a quarantine period of ten days, it might yet be possible that during these ten days an infection, or a transfer of the contagion by means of an article which is infected, and which has been brought into the establishment, may have happened, and then the disease would make its appearance in a few days after the animals had left the quarantine establishment. Therefore I laid it down as a condition, when speaking in Hamburg, that the animals as well as the articles and men, which are admitted into the quarantine establishment, should be disinfected on entering. Should a disease appear within the establishment during the quarantine period, then of course at the conclusion of the quarantine another disinfection must take place, otherwise I consider the adoption of all the proposed conditions insufficient.

Mr. *Seifmann.*—I must claim your indulgence should I not be able to express myself so well in German as I would desire. I would take the liberty to defend some measures existing in Poland against the attacks of Professor Hertwig. It has been stated, we had in Poland a quarantine period of twenty-four hours, forty-eight hours, three days, and twenty-one days' duration. It might appear, in consequence, that there were no definite laws in Poland; but the fact is, in different cases different proceedings are adopted. First permit me to state that there is no quarantine of three days' duration; there exists one of twenty-one days, one of two days (more correctly of forty-eight hours), and in particular cases one of twenty-four hours' duration. The cattle which are intended for killing can only be brought in Poland to certain appointed places, namely, into large cities and extensive townships which require great numbers of cattle for slaughter; and as the roads are guarded by veterinary surgeons, and the cattle in the places are likewise carefully superintended, a quarantine period of twenty-four hours' duration appears quite sufficient. If cattle are sold thence, they are accompanied by a veterinary surgeon to their place of destination, and there they are subjected to a quarantine of twenty-one days' duration. But the cattle which are intended for draught or other kind of work, and which are brought often in contact with native cattle, have invariably to pass through a quarantine of twenty-one days' duration, in accordance with the laws at present existing.

Dr. *Rawitsch.*—Permit me, Gentlemen, to speak first upon the principle of quarantine. I believe that the quarantine can only be used in the case of diseases which can be proved to extend by means of importation. If it were possible that the animals could fall sick without infection, that the Rinderpest could be originated spontaneously by animals during the time they are in quarantine, then of course quarantine would be useless. Therefore, it ought to be proved that cattle for killing which are imported from Russia could only fall sick of Rinderpest when out of Russia, by means of infection. But if we believe that steppe cattle, even when out of Russia, are able to originate the disease spontaneously, then naturally the quarantine would not be required. I will only state that, at present, we have no scientific proofs that the Russian steppe cattle develop the Rinderpest spontaneously while they remain in the steppe, and that in other places they fall sick of the disease by means of infection. Once admit that they may originate the disease when removed from the steppes to other places, then the quarantine appears useless. Because, let us suppose the cattle have arrived healthy, and had not only been twenty-one days but fifty days in quarantine without falling sick, and then leave the quarantine establishment healthy but fall sick on the road, then quarantine would have served no purpose whatever. I beg leave to ask the President to determine, if Rinderpest may be originated spontaneously by steppe cattle when they have been removed from the steppes, or if they can only fall sick then by means of infection? If the cattle can fall sick only by means of infection, then the principle of the quarantine is correct; if the contrary is the case, then the quarantine is useless, and would not require to be reduced to ten days.

Director *Zangger.*—Gentlemen; the opinions which have just been expressed induce me to make a few remarks. Rinderpest is not a disease of to-day; it is an old disease; and we must, when we deliberate on the measures for its prevention and limitation, not forget its history. And what does this history prove, Gentlemen? It proves that Rinderpest spreads as a contagious disease over the West and South of Europe, coming from the East; and this happens always at a time when learned men start the question, "does Rinderpest really spread by means of a contagion, or does it become developed primarily?" And when this question, emanating from learned men, excited attention in any country, it was always a misfortune for that country. France, Italy, Holland, and England can bear witness to the truth of this remark. You still remember those devastating epidemics in Italy, France, and the Low Countries, where, during the discussion of the question, whether Rinderpest was developed primarily or not, the whole stock of cattle, as it were, was destroyed. Gentlemen; if we return to this point we have not progressed at all; we have rather acted like the ostrich; closed our eyes to the danger, and not profited by experience. I do not only believe it, but it is an undeniable fact, confirmed by experience, that in the western countries of Europe, Rinderpest, for a long time past, has appeared solely by means of infection. By way of improving this opportunity, I shall now proceed to the principal question. I suppose the Committee will propose further motions with reference to the treatment of the so-called poison-absorbing substances in man, animals, &c., and therefore I shall not enter into that subject at present. Now, Gentlemen, if it was intended to advise a country how long the quarantine ought to last in a locality where Rinderpest is prevalent, I would be in favour of a quarantine of longer duration. What has been narrated here to-day proves, that when Rinderpest has appeared anywhere, free intercourse cannot be restored again ten days after no new case has appeared. But this is not the object under consideration at present, we are considering the importance of a permanent quarantine; and, if I understood correctly, this exceptional permanent quarantine is against Russia. Russia, I regret to say, is not in that stage of civilization that, wherever it is necessary for the extirpation of Rinderpest, the requisite police measures could be employed and put in force which could and would be employed in a more civilized country. And because Russia cannot wield the necessary power to extirpate the Rinderpest on the spot where it breaks out, and put in force on that spot the requisite measures for preventing all communication, we are obliged to protect ourselves continually against this country. This permanent protection up to the present time consists of a quarantine of twenty-one days' duration; a quarantine which, by greatly impeding free communication, is frequently evaded. A permanent measure of this kind ought not to be put in force with such severity, as one which is employed at the place where the real danger exists. And it is certainly justifiable, with regard to the necessity of freeing the general intercourse from impediments, to relax this severity; but it is likewise justifiable, especially when those guarantees are demanded which are necessary to prevent any possible danger consequent on the liberation of free intercourse from all impediments. So soon as Russia is able—and I hope this will be shortly, as that empire has entered on a new era—to put in force police measures against Rinderpest, which Austria employs in most of her provinces, and which we in the West of Europe are able to employ, we should no longer require a permanent quarantine, and would not want to employ it. Gentlemen, I represent here a country which is greatly interested in arresting the progress of Rinderpest from the East to the West; and if I should vote for the employment of the severest measures, it would only be an expression of popular opinion. Another circumstance may be noted. As a cattle-breeding country, we might think, we should execute these measures with great strictness, in order to prevent the Podolian cattle competing with those in the West of Europe. But I do not believe it would show the elevation of the human mind if envy and other bad qualities exhibited themselves, and acted as inducements to vote against a reasonable relief of free intercourse. I therefore believe that, although I represent a country wherein these circumstances exist, I may, with full conviction, vote in favour of this lightening of intercommunication, and at the same time retain to myself liberty to return to the opinion expressed by Professor Bleiweis of Laibach. And why? Because, between us and Russia several other countries are situated. Austria is the country most immediately exposed to the danger, and we have seen during a series of years, that it has the experience, the will, and the power to extirpate the Rinderpest, as soon as it passes beyond its borders into the interior. Austria is our bulwark. The importation of the disease into Austria, necessitates the employment of the severest measures for its extirpation, and the danger in consequence, so far as we are concerned, loses in magnitude. Certainly, when it becomes farther extended by means of traffic, it may come to us, to France, and to other countries. But then, we in our turn employ, wherever the Rinderpest has been imported, the severest measures. I believe England experiences now—not with regard to Rinderpest, but to Pleuro-pneumonia—what enormous losses may be sustained when scruples are permitted to prevent the introduction of the most severe measures. This disease also prevailed in Switzerland, not farther back than the first quarter of this century. In consequence of using the severest measures, it appears now only at lengthened intervals; and the severe police measures enforced reduce the losses to a minimum. I believe, that even those who fear the danger greatly, and desire the employment of all means which may prevent the progress of the disease in a westerly direction, may yet, with due regard to the precautionary measures proposed by the Committee, vote for the relief of intercommunication.

Professor *Hertwig.*—Gentlemen; what has been stated just now by Professor Zangger, I acknowledge as thoroughly correct. In Prussia likewise the immediate contact with foreign cattle is very general. Prussia possesses towards Russia a frontier of at least 150 (German) miles. Prussia must likewise act, with regard to the other parts of Germany, as a bulwark; we are therefore obliged to take the same view as that which Professor Zangger expressed with regard to Switzerland, as a cattle-breeding country. Prussia has, by means of a quarantine of twenty-one days' duration, and by employing very severe measures wherever sickness appeared, arrived at that point, that the losses which happen on this long extent of frontier may, as it were, be considered of slight importance. I purposely say, not *only* by means of the quarantine of twenty-one days' duration, but during the time of its establishment. We are there, on the frontier, continually on the *qui vive;* and if the disease, in spite of the quarantine, appears on the Prussian side of the border, we are generally able to limit it to a township, sometimes even to a farm or a house. But how? By the employment of the severest measures in the country. Free communication on the border may be prohibited or not, it is all the same. But with the township or the house, all communication is interdicted, and the village watchmen are not trusted to perform this duty, but soldiers with loaded firearms are employed; and whoever does not obey when he is ordered to "stop," receives a shot in his legs (laughter) to prevent his coming again. The club is also used, to remove the infected cattle effectually and at once. With regard to the breeding of cattle during the existence of the twenty-one days' quarantine, the possession of that which he had is guaranteed to the farmer. Although the condition of the ground is in many parts of Prussia very poor, yet that kingdom is so rich in stock, that the importation of herds is a matter of the greatest indifference. On the contrary. Hundreds of the finest head of cattle which we do not require (at one time more, at another less) go from the Berlin cattle market, which takes place twice a week, by way of Hamburg to England. I do not fear, therefore, as the result of a reduction of the quarantine of twenty-one days' duration, a much greater importation of foreign cattle. This has been a reason which induced me to agree with the opinions expressed by the other members.

Director *Gerlach.*—I fully concur in all that has fallen from our eloquent colleague Zangger in reference to the development of Rinderpest. We do not know if Rinderpest has a home, and if it should have one, we even know less as to where that home is. But we do know that it is not in Germany, nor in the neighbouring countries. I will pass this by, and at once enter into the main question on which we are deliberating. I believe the two last speakers have deviated from the right point. They declared that they (Professor Zangger more particularly) had no direct interest in the subject; that when the disease should appear it could only secure the employment of more stringent measures, and that they considered Austria and Prussia strong bulwarks. From the last speaker we heard that even soldiers were employed to preserve the security of the country. I should be in the same position with regard to Hanover, which country I represent, and which has no direct source of fear, should the quarantine, which until now has protected us, cease. But, Gentlemen, here a principle is concerned. Ministerial Counsellor von Well has expressly stated how cautious the Government is in Austria; how it desires first a security—a foundation—before it proceeds to abolish an old and tried measure. The Government did not consider it right and just—and this caution deserves high praise—to introduce this measure in consequence of the resolution of a majority in Hamburg. It proposed the question again for deliberation, and demands an unanimous resolution on this important subject. Gentlemen, what does an unanimous resolution mean? In other words, that we should give a technical security based on certainty; that science should explain it; and that all representatives of science should be convinced that it might be introduced without danger. Now, Gentlemen, I ask, are we able to give this security? We shall be held responsible for it. And if Government is so cautious, are we not to be so likewise even in a greater degree? As a foundation for the term of quarantine, the period of incubation has been taken. Well, this is perfectly correct; but, Gentlemen, another consideration ought not to be forgotten. With regard to the duration of incubation, we know from analogy that there are no contagious diseases where it is absolutely always the same; it varies. The same variations we have likewise in Rinderpest. This disease, we have heard, has a period of incubation of from four to nine days. This gives no security that there are not periods of even a longer duration. With other contagious diseases, and especially with those the progress of which is most malignant, incubation is frequently of a much longer duration. Analogy already invites us to be cautious; that which is proved in one place may also be the case in another. But if we accept even nine days as the longest term of incubation, this is of itself no sufficient foundation to do away with an old and tried measure. Another agent must be considered, the nature of contagium, an agent which we know partly only from examination, and by no means to its whole extent. We must distinguish between an infection which appears when an animal suffers from Rinderpest and is surrounded by healthy cattle, which in a few minutes and in so many respirations inhale a sufficient quantity of pestilential matter, and in consequence of which the incubation of the disease commences; or when we inoculate the contagium, and from the same moment it begins to operate; then it may be the longest time. But is the infection always thus, Gentlemen? We must remember that, for an effectual infection, a certain quantity of contagium is always required. We know better now than to subscribe to the assertion that the smallest quantity of contagium is sufficient to produce infection. We know this is not the case. A great many experiments have been made with infectious diseases, and it has invariably been found that this is not the case, but that a certain quantity of the contagium must exert its influence before the disease can germinate. This is likewise the case in Rinderpest. Thus, when the contagium adheres to infected animals, or becomes adherent to their hairy hides, in very small proportions, it exerts a certain influence without injuring the animal, and is not sufficient to develop the disease. The animal becomes infected, not with one respiration, not with ten, not in an hour. After several days it is really infected, and the disease appears then after several weeks. If we look to the history of the disease, we see that Rinderpest spreads in great leaps; that the disease, when there is no knowledge of its presence, may lead to further outbreaks, and that it is impossible to follow its gradual extension. What is the reason of this? It has been stated that the disease is primarily developed by cattle from the steppes. We are beyond that. It is and remains a contagious disease amongst steppe cattle. In no place has it been proved, that a spontaneous development has occurred. These circumstances constitute one cause of the disease spreading and extending, as they delude, so that it may be supposed it will appear at a greater distance. We could not explain this by an incubation of from five to nine days' duration. If the period of incubation were so certain, it could not wander thus far. It ought to be borne in mind that there may exist circumstances whereby the period of incubation lasts longer by this contagion. We are therefore not able to guarantee the Government of Austria that security which in its wise caution it demands. For this reason I am to-day just as much opposed to a reduction of the quarantine period as I was two years ago in Hamburg, and cannot be converted to any other opinion by the reasons which Professor Hertwig has stated. The same condition exists in Prussia. The old quarantine is no hair-cue, which could be cut off. It is an old proved measure which has protected us. If direct or indirect, by means of having kept off Rinderpest, I will not investigate more closely. It has protected us. This ought to be borne in mind, and not to be given up readily, because we must be very cautious. The ultimate end which we have in view is so noble and well-meaning that I by no means mistake it. But it is intended to suppress the smuggling trade, and by this means it is believed the object in view will be attained. Gentlemen, I do not believe that a reduction of the duration of quarantine will suppress the smuggling trade. The expenses for ten or twelve days are heavy enough; and they are a sufficient inducement for the smuggler to smuggle. Once promote access to the frontier, and transit will become much greater; commercial intercourse will increase, and by this frequent intercommunication smuggling will become more flourishing, because less control will be exercised than at present, and, as a consequence, Rinderpest will spread more. Another point, which certainly does not concern us so immediately, is: Does necessity force on us the adoption of this measure? Do we require steppe cattle? Cannot we exist without them? Must we open our doors for the annihilation of our herds by a pest, as has happened in all times? No, Gentlemen. Even in Austria, where there is no profit through this importation, where just as much is lost by the pest as has been gained by the importation of the steppe cattle—much more in other countries—there is no sufficient cause for it. The Government wishes to know with certainty if it may facilitate with security the commercial intercourse. This intention is noble, and deserves acknowledgment. But, gentlemen, I am not in a position to guarantee this certainty; and for this cause I am opposed to the reduction of the quarantine period.

Dr. *Röll.*—As reporter of the first Committee, I beg leave to make a few corrections as to facts. A remark has been made which might lead to the supposition that the Austrian Government intended to grant a concession or pay a compliment to a scientific theory by reducing the quarantine period in accordance with the ascertained period of incubation (eight to nine days) in Rinderpest. This is by no means the case. On the contrary, an entirely practical want obliges the Government to ask, if not by means of the reduction of the quarantine period for those cattle entering Austria across its eastern frontier, how a lessening of the danger of importing the Rinderpest might be obtained. This consideration, I believe, must be kept in view. It has been said and written, that Austria does not require the importation of Russian cattle, and it would therefore be better to entirely bar the frontier. This has been based on the supposition that a certain number of cattle is exported from Austria, and in their place a certain number is imported, and that therefore the consumption within the country could be supplied by its own production, especially if the great losses are added which are caused by Rinderpest, and which could be avoided by preventing the importation of steppe cattle. I doubt whether the most stringent prohibition could prevent the importation of steppe cattle into Austria. It only requires to have a slight knowledge of the conditions on the eastern frontier to acknowledge the truth of this assertion. In Galicia, in the eastern border districts, there are many distilleries, and consequently there exists a desire for cattle, to make the refuse a source of profit. But so long as it is possible to obtain an ox for 40 to 50 florins from Podolia or Volhynia, whereas one from Galicia costs 70 to 80 florins, the exportation from Russia and the importation into Austria will continue. If even the frontier is barred against horned cattle, a road into Austria will nevertheless be found, and the price of cattle will only rise a trifle in consequence of the raised premium on smuggling. If it is said we breed sufficient cattle in Austria to satisfy our own wants, and could therefore do without foreign cattle, I ask in return, How are we to send the cattle to Upper Austria, Salzburg, Galicia, and other places, and what will they cost when they arrive at their destination? I am convinced the importation of Russian cattle into Austria will continue until land in Russia, and necessarily the price of cattle there, become as expensive as in Austria; but before this happens a lengthened period will have passed away, because close to the frontiers of Austria, large tracts of land are still only used as pasture-grounds, and the breeding of cattle there is considerably less expensive in consequence. An attempted prohibition would by no means prevent the importation. It has been further stated: we ought not to do away with the "proved" measure of a quarantine period of twenty-one days' duration. I take the liberty to observe in this respect that a measure can only be considered as a "proved one" when tangible favourable results are obtainable. If, Gentlemen, you would look into the official report of the first international Assembly at Hamburg, you will find a statistical note of the ravages committed by Rinderpest from the year 1849 to 1863 in the Austrian empire. If you investigate figures, you will naturally ask, How could it be possible that, in spite of a quarantine period of twenty-one days' duration existing in Austria, such invasions could take place, through which complete destruction is caused, representing a capital of thirty millions and more; and that, in spite of the employment of the most stringent extirpatory measures, the disease appears again continually in the interior of the country? When you investigate the subject more closely, and have an opportunity of examining the reports, you will find that during years, many years, only healthy cattle enter the quarantine. I have examined the reports I received for this purpose very carefully, from the year 1850 to 1863, and only once did I find a case of sickness, as having occurred in quarantine. The animals remained twenty-one days in the quarantine establishment, were during this period always healthy, and nevertheless throughout these thirteen years we have had again and again Rinderpest in Austria. Should the animals which, evidently healthy, were nevertheless twenty-one days in quarantine, have imported the Rinderpest? Only the completely healthy cattle of substantial traders come at present into the quarantine. Sick or suspected cattle never reach the quarantine; they are imported into the interior of the country by means of smuggling. That the smuggling trade is not an illusion is proved by figures in an article 'On the Quarantine System,' which I published in the *Austrian Review.* It appears that, passing the eastern frontier of the empire, about 25,000 head of cattle entered through the custom-houses of East Galicia, but that 50,000 cattle appeared in the butcher-meat market of Vienna. The question then naturally arises, How does the surplus of these cattle come into the country? By travelling on the eastern frontier the working of the cattle trade will soon be understood. It has further been stated that the reduction of the duration of quarantine would not take away much of the inducements held out to the smuggling trade. This is likewise incorrect. During a quarantine period of twenty-one days each head of cattle in the quarantine establishments of Galicia or the Bukowina costs between 8 and 12 florins, sometimes even 15 florins; therefore on an average about 10 florins. The smuggling premium is valued (so it is stated) at about 6 florins per head of cattle. When, now, the trader smuggles, he pays about 6 florins per head; he saves hereby the quarantine expenses of 10 florins per head and the duty of 4 florins 20 kreutzers, without taking into consideration that his cattle, which often represent a capital of 20,000 or 30,000 florins, bring him no profit during twenty-one days whilst they are in quarantine. These are things which the dealer considers very carefully. If now the duration of the quarantine is reduced to one-half, the expenses consequent thereon are likewise reduced in the same ratio; the dealer gains half of the time during which he may draw profit from his cattle, *i.e.* he may render his capital available twice during this time. I am convinced, and all who live on the frontier and mean honestly on this subject share the conviction, that the reduction of the quarantine period to the least duration which the state of veterinary science permits, is the only means of limiting the smuggling trade. But another circumstance must occur at the same time, namely, that quarantine institutions must be established wherever the requirements render them necessary; they must therefore be multiplied according to the requirements in order to prevent people from making a circuit of perhaps thirty or forty miles before they and their cattle could enter a quarantine establishment. The Committee has supplied a sketch about the requirements of good quarantine establishments for animals in general; but, in doing so, it did not mean to imply that the quarantine establishments used hitherto are so bad as not to be fit for future use, it was only intended to point out that they must satisfy the demands of veterinary police, that they must be able to keep the cattle healthy, and must furnish the means of recognizing a disease immediately on its appearance. We have then added a few views of our own. But in doing so it was by no means our intention to give instructions on the mode of procedure in quarantine establishments. We have said purposely in the motions "the demands of veterinary police," &c. My opinion of the subject is, if an international debate takes place on the animal quarantine system, the fundamental rules for such institutions would doubtless be first communicated, and only on the conclusion of the debate could an agreement be arrived at on matters of detail. We could not insert opinions on details into the motions. I quite agree also with the opinion expressed by Medical Counsellor Fuchs that animals must submit to a disinfecting process on entering the quarantine establishment; but I consider this as being already conveyed in the expression that quarantine institutions must satisfy the demands of veterinary police. All animals before entering the Austrian quarantine establishments are at the present time washed; these places of quarantine are so situated that they are bordered by a river. I must protest against one more remark. It has been stated that the Austrian Government had hesitated to reduce the duration of quarantine in order not to abolish a measure which, with regard to Austria, has proved itself efficacious. To this opinion I cannot subscribe. The cause of this hesitation was stated to be, if I mistake not, that the Austrian Government would not reduce the period of quarantine before it had arrived at an understanding with neighbouring Governments; as it feared, if it did so without a previous agreement of this kind, that preventive measures might be put in force against Austria, and that neighbouring countries might be closed against that empire. From purely international considerations did Austria hesitate to introduce this measure.

Professor Hertwig.—I have only to claim your attention for one observation with regard to the statement that quarantine has proved effectual as a protective measure during the last fifteen years. During this time we have had the Rinderpest in Prussia coming from the Russian border, and running in an oblique direction through the country with great swiftness, nearly as far as Dantzig. Another time we had the disease in spite of the quarantine in the Grand Duchy of Posen, extending as far as Silesia and the river Oder. At another time, only a year later, we had it from the Bohemian and Silesian side, extending at once right in to the middle of the country as far as the region of Breslau, and in the district of Oppeln it appeared frequently. Therefore the protection, the unconditional protection, is absent. As I previously observed, if we are able to escape the disease with not so serious losses, this is not to be ascribed to the existence of quarantine as the sole cause, but to those veterinary police measures which are employed in the interior of the country. I now request colleague Lüthens, from the district of Oppeln, to confirm this by the statement of a few facts.

Mr. *Lüthens.*—As is well known, gentlemen, the prevention of Rinderpest is far more difficult than its extirpation. At least I must assert this, so far as regards the results obtained in Prussia from the means employed for its extirpation. That the system of extirpation in Prussia has produced very favourable results during the last few years is to be ascribed to the circumstance that so soon as Rinderpest makes its appearance in a herd of cattle, every animal is killed without regard to the number of animals which are really sick, and without consideration of how many head the herd consists, should they amount even to several hundreds. This is one of the principal bases of the extirpation system. The second is, as stated previously by Professor Hertwig, that all communication is cut off with the farm where the disease has appeared, and this is done by means of soldiers; this interrupted communication remains in force until a complete disinfection has taken place, in such a manner that after the communication is free again, the contagium could not be spread. But with the prevention it is different. For this we have no secure remedy. Even a quarantine of a longer duration than twenty-one days would not be able to keep the poison—the contagium—from us; because, Gentlemen, there are many ways by which the contagium may be carried. It cannot be forced by order of the authorities to take its road through the quarantine establishments, so that it may be at once discovered by animals whilst in quarantine. It has been stated several times that the smuggling trade is the principal means by which the contagium is imported to us; this trade will continue even if a sentinel is placed at every twenty paces distance. There are smuggled animals which may and do bring the contagium to us, as we have experienced and still experience daily. We have therefore an absolutely certain means of extirpating Rinderpest, and this is what I previously described. But our preventive means are not absolutely protective, and therefore the principal means to suppress Rinderpest and to prevent its gaining ground is to make use of the extirpation system. Bearing in mind that we are certain to be able in Prussia to extirpate Rinderpest on its appearance, and to prevent its spreading further into Germany, and considering that we have a securely operating means to extirpate the disease, I would recommend in accordance with a wish previously expressed by Dr. Bleiweis, that the existing duration of quarantine be reduced to twelve days; but I must add that this should be done only on condition that the "stamping out" system as at present employed in Prussia, or one similar to it, be adopted by all other European countries should Rinderpest make its appearance, else the proceeding would not be uniform.

Professor *Reynal* (in French) wishes to submit to the learned Assembly a few short observations with regard to quarantine employed against contagious typhus. He, the speaker, has not personally investigated the disease; but he has read works published by his colleagues in Germany on the incubation period. He has not found that its duration, as stated, has been proved undeniably by experiments, as has been said previously by Professor Gerlach. He, the speaker, believes it very difficult to establish a quarantine, the duration of which should be based on the period of incubation which is likewise not firmly ascertained. Under these circumstances Mr. Reynal considers it advisable to investigate the quarantine question in a general manner. By looking at the question in this manner, the professor considers it necessary to reduce the duration of the quarantine as much as possible. A quarantine of a long duration is very inconvenient to the requirements of commerce: it opposes free intercourse, and leaves the capital unoccupied and idle; but it protects fraud and the smuggling trade. The dealers try by every means in their power to set the stringent prohibitive measures at defiance; nay, the quarantine laws on the frontiers are often evaded by the very persons whose duty it is to see that they are respected. In summing up, Mr. Reynal shares the opinions of those members of the Assembly who desire a quarantine of the shortest possible duration. For this the professor added, that the citizens in every country where the Rinderpest is prevailing should come forward voluntarily, and aid the Government in its endeavours to suppress the epidemic. Mr. Reynal is likewise of opinion that it would be very useful, that in the harbours of Russia whence cattle are shipped for exportation, and on the large railway stations, where great numbers of cattle are often congregated, that sanitary inspectors should be placed to examine the animals. The professor has seen in Hamburg and Altona cattle exposed to all weathers. In the interior of the vessels they are pressed together closely in a narrow space, and are obliged to inhale the confined and vitiated air. If it were possible to introduce some sanitary measure to ameliorate their condition, without in any way hurting commercial interests, it would be a great benefit. Mr. Reynal does not entertain the slightest doubt that these circumstances taken together are the causes which rapidly develop diseases to which animals are predisposed.

Mr. *Rawitsch.*—I will, gentlemen, make but one observation regarding the opinion which our colleague Zangger expressed in reference to the spontaneous development of Rinderpest by steppe cattle. I use the word steppe cattle, because I have learnt from history that Rinderpest beyond the steppes, and especially in the west of Europe, is produced solely by means of infection. I never believed, and never intended to infer, that there likewise it was developed spontaneously. I only intended to say that the cattle are driven from the steppes of Russia to foreign countries; that on the road beyond the steppes they may fall sick spontaneously, and then the quarantine would be useless. The gentlemen who spoke after me have done much to confirm my assertion; thus, for example, Professor Hertwig stated that Prussia is not protected against Rinderpest through the quarantine, but by means of its firmly established police measures, which are rather vigorous. Therefore the quarantine in itself and by itself is useless. In Austria the same is the case. The quarantine does not protect against Rinderpest, because, in spite of it, as Director Röll stated, great losses are sustained. During a period of six years and more, Rinderpest, in spite of the quarantine, was continually in Austria. It has been said that the smuggling trade brings cattle into the country, and spreads the Rinderpest by means of infection. But why, gentlemen? Does not the smuggling trade exist every year? Why does not the Rinderpest spread every year in Austria and Prussia? Is this not a sufficient proof that, especially in such years when the cattle in the steppes of Russia show a predisposition to the disease, the cattle in other countries may likewise fall sick? I will not dispute what Professor Reynal asserted, namely, that Rinderpest, or a similar disease, the typhus, may be developed in ships, in consequence of the pressing together of many animals; this is possible—I mean with especial reference to Russia. I am firmly convinced that Rinderpest in steppe cattle does not only develop spontaneously as long as the cattle remain in the steppes, but far beyond them, and that the disease is specially induced by long marches and privations. By this means it may be explained that a herd may leave the steppes perfectly healthy, and after three months from its arrival in Petersburg or the north of Russia, the disease may appear. Then it will be said, they have been infected on the road by other cattle. But many have asserted, and it may be stated publicly, that cases occur where these steppe cattle have been infected without having passed through stables where Rinderpest was prevalent. Are these cases not sufficient to prove that steppe cattle may, under certain circumstances, I do not say always, likewise develop the Rinderpest even beyond the steppes? Therefore, why refuse to believe that the same steppe cattle when they have passed the frontiers of Prussia or Austria, may spontaneously fall sick of Rinderpest? But should even this possibility be admitted, it has not been proved scientifically, because history proves only that in the West of Europe, in England, Spain, France, and Germany, Rinderpest often ceases of its own accord, because there is no importation, and steppe cattle come seldom into these regions. When, therefore, steppe cattle fall sick spontaneously beyond the frontiers of Russia, then quarantine is useless; there is only one means, as Professor Hertwig stated, and this is to kill them. If quarantine shall nevertheless continue as an old established measure, I am in favour of its reduction, as being quite ineffectual.

Mr. *Zlámal.*—I will only, in passing, touch on the assertion that Rinderpest may originate spontaneously, and then proceed to something else. My experiences are based on agricultural conditions in regions similar to those in Russia and the Danubian Principalities. We have likewise steppe cattle in Hungary, our herds are likewise accustomed to be in the open air during summer and winter. The breeding is the same as far as other circumstances still permit it. How it will be later I cannot say. I have had opportunities nearly every year since 1838, and during the first six years without interruption, to observe the progress of Rinderpest in Hungary, not generally and from hearsay, but step by step. I found the scent always beyond the frontier; it has always been imported to us. Only defective observations, not being able or unwilling to search, as is too often the case, merely for the sake of discovering something new, has raised amongst us men who assert that the disease originates spontaneously in Hungary, but fortunately under such circumstances no counter-proof was necessary to demonstrate that it really had been imported to us from other places. Therefore quarantine, regarded as a protection against the importation of Rinderpest, is not alone admissible, but likewise necessary. If one who has had a good insight into these matters can agree with some of the previous speakers, I would certainly adopt the opinion expressed by Counsellor of State Jessen, that we are unable to fix upon a secure quarantine; that the Rinderpest may return to us, or be imported in eight, ten, fifteen, or twenty days.

But if we intend to proceed from exceptions and possibilities, it would be better to let this discussion drop. We must have a base, and must have reasons for the adoption of this base. Since 1839, when I first had opportunities to observe Rinderpest, I tried inoculations. These were not limited to two or three, but extended to 215 head of cattle, and were performed under circumstances which permitted us to consider the results as certain, because the attempts were not made during a time when Rinderpest was prevalent in infected places—not where cattle were in stables and towns, but in places well adapted for the purpose. I appeal to the testimony of my colleague, Professor, Director, and Doctor von Szábo in Pesth, where we performed the last inoculations, and where the incubation period, after inoculation—namely, injecting the contagious matter below the skin, and infection by inhalation of the pestilential substance—was limited to four or six days. If we therefore intend to proceed, according to experience and science, we ought to take this as a basis. That the incubation period may last nine days I have never stated, but I admit it. Nay, under certain circumstances, as has been very correctly argued, the quantity and quality of the contagium may exert a great influence. I know of cases where an animal, bought at an infected market, did not fall sick before the twenty-first day; how this happened I do not know. I will even ascribe it to the quantity of the contagium. But it is not, I hope, our intention to found measures on exceptions. If there is any one who is thoroughly convinced that all quarantine might cease, I am that person; because since 1828 I have seen three Rinderpest invasions, in defiance of all quarantines. Whether quarantines have proved effectual in some cases, I do not know; but I know they have not done so with us. The Rinderpest was introduced in the year 1828, and stayed with us till 1842. During 1848 it was imported, and lasted till 1856. Again, in 1861 it was brought to us, and is still raging in spite of all quarantine. If it were, therefore, possible to abolish quarantine, and thus free intercourse from all impediments, I would certainly be in favour of such a measure, and I must confess it was my intention to introduce a motion to that effect. But certain existing agricultural conditions do not permit this; and therefore I refrain from introducing my motion. If quarantines are not useful, we must endeavour to modify their effects. They have not protected us at any time; why should they still remain instruments of annoyance? One of the previous speakers said: "If twenty-one days do not protect, how could ten days do so?" Much sooner, gentlemen. The expense for each head of cattle in the quarantine establishments does not, as Professor Röll stated, amount to ten florins; this would only be the case at a very favourable time. The Land Veterinarian for Galicia could give you different information with regard to droughty years, when four florins per day is charged for fodder for each animal, and when therefore the expenses for each beast amount during twenty days to 80 florins. We must remember that by such means we encourage smuggling. I am consequently for the greatest possible reduction. I should have desired quarantine reduced to eight days, but I acknowledge the force of the reasons stated, and vote for ten days. There are some gentlemen here who admit an incubation of nine days' duration, and yet desire a quarantine of twelve days. I beg to remind these gentlemen that animals do not generally proceed at once, and on the same day, from their stables to the quarantine establishments; they have probably marched for days, perhaps for weeks, and therefore the observation of them cannot date from the day of their entrance into the quarantine, but the possibility that an infection might have been given previously. Based on this, a quarantine period of eight days' duration would be quite sufficient, for if we fix on ten days, it may always be taken as granted that the infection may have taken place a few days previously. We do not suppose that disease might originate in the quarantine establishments; this, as experience proves, has very seldom happened. I would also earnestly remind these gentlemen that the cattle do not come from parts in the immediate neighbourhood, where, at any rate, other measures would have been employed, but that they have travelled for some time, during which they must have been infected. We must, in spite of the quarantine, be always prepared for the enemy. When time is given for the disease to spread, then it is necessary to adopt those measures in the interior of the country which Professor Hertwig mentioned and explained so lucidly. There they are not even afraid of the importation, because they know their own ability to overcome it. But the condition on which this "overcoming" depends, is a knowledge that the disease exists; and this we know very seldom, frequently not before the whole country becomes infected. What may be a subject for consideration is, how the expenses incurred in a permanent supervision of cattle could be liquidated; this likewise has been pointed out in the motions, and I am of opinion that the formation of a fund would prove very beneficial. I believe, that only then could cattle insurances exist, that only then could we breed cattle, without sacrificing every year between 30,000 and 40,000 head, as we do at present, when not only veterinary police measures in the interior are instituted, but when pecuniary means are available to execute them. But then we cannot expect the State or the community to do everything. Those most interested, could obtain security by means of a small contribution, which could never be felt burdensome. I have made a calculation for Hungary, and have arrived at the conclusion that each head of horned cattle may be insured for 20 kreutzers; and as sheep are also liable to suffer from Rinderpest, I have projected for them an insurance of 1 kreutzer each; the result would be 188,000 florins annually. This sum, in the first year, would be required to make all necessary preparations, appointments, &c. In favourable years this contribution may be reduced one half; because it is not intended to indemnify for cattle which have died or were killed, but the object is to keep them healthy, and in time such a fund would be the result, as to render all contributions superfluous. Let me repeat, that although I was opposed to quarantines, I am convinced they must continue; but that, because they are of no, or very little use, I should like to see them reduced to a minimum, to prevent their interfering with commerce, their impeding free intercourse, and encouraging the smuggling trade to too great an extent; lastly, we ought always to expect the invasion of the enemy; but we must likewise be prepared to receive and speedily to extirpate it.

Dr. *Bruckmüller.*—Is it allowable to move that the debate now close?

The *Vice-President.*—I shall put it to the vote, if the Assembly wishes to close the debate or not.

Director *Zangger.*—I move the continuation of the debate.

The *Vice-President.*—Those gentlemen who wish that the debate should be continued will please to rise. (They rise.) The majority is in favour of continuation. Counsellor of State Jessen will speak next.

Professor *Jessen.*—Gentlemen; it has been a source of satisfaction to me to have seen, during the progress of these deliberations, that the point in favour of which I gave only a few reasons has been acknowledged in general, or if not in general, at least as a complete whole, viz.: that the quarantine establishments on the frontier are not capable of guaranteeing a complete and unconditional protection. I consider, therefore, the reduction from twenty-one to ten days as a preliminary measure to their entire abolition. In this respect, therefore, I have nothing further to say. But I should like to answer a few accusations (I ought scarcely to call them accusations) which have been raised in the course of the debate against the Russian Government and against Russian enactments. It has been stated that in Russia we suffer extraordinary losses through the Rinderpest, because our veterinary police measures are still in their infancy, and we have therefore not the means to prevent the epizootic. Gentlemen; to deny this, would least of all be seemly in me, who —like others of my colleagues who have expressed their opinion on this subject—have gained sufficient experience in Russia. But I must beg you to consider what difference there is between the circumstances in Russia and the conditions here. It is (although not generally accepted) a general opinion here, that Rinderpest does not originate spontaneously in your own country, but that it is always imported from beyond the frontier. By this means, Gentlemen, you certainly have it very easy! You might seal your frontiers hermetically and let nothing pass; if you can do without the Russian cattle, you can order a quarantine of forty days, if it can with justice bear the name, of twenty-one days, or even of ten days' duration. But what have we in Russia? We do not know the haunts of Rinderpest. We do not know, at least not with absolute certainty, if the disease originates spontaneously in the steppe countries. We are still trying to solve this problem; and we, Gentlemen, have tried by inoculation to arrive at a solution which, if successful, would, according to my belief, render all quarantine measures superfluous. Inoculation has been practised for no other purpose than to examine the question: "Can we arrive at that point by means of inoculation that we may export only such cattle beyond the borders of the steppes as have no predisposition whatever to originate the Rinderpest spontaneously, and which therefore run no risk of being infected during long marches, nor are able to carry the disease into other countries?" This great task of inoculation has, unfortunately, not been rightly understood everywhere. But, Gentlemen, I hope we are progressing in the right direction, and that the present time, which provides such extraordinary means for extraordinary purposes, will likewise find a means to prevent gentlemen in future cudgelling their brains about quarantines for Russian cattle, and enable us to export only cattle which cannot take the disease nor even spread it. This, Gentlemen, I wished to say in conclusion. I vote now, as before, in favour of the reduction of the Rinderpest quarantine to ten days.

Professor *Haubner.*—Gentlemen; I intend to make only a few remarks, and more especially with regard to police measures, which I hold to be heavy burdens, and particularly when they are put in force with greater severity than is necessary. But, I ask, on what was the former and still existing quarantine period of twenty-one days based? I answer, on former observations and investigations, which we can no longer recognise as effective. We must now use our more modern experiences as bases. And suppose we could overlook everything previously accepted, and the question were asked of us as a learned body: "To what duration will you, without regard to previous experiences, determine the quarantine period?" The answers would be, "to eight, ten, or twelve days," according to the views entertained. But no one would listen to a proposed duration of twenty-one days. I must also point out, that a measure or law can never be based on exceptions. The rule must be considered; the rule is, that we have a short period of incubation. It has been stated by competent judges of great experience, that it does not extend even beyond the ninth day, and I believe by this rule we must abide. If we rely upon this, a quarantine of ten days' duration ought to be considered as a proper measure. Much has been said about the proved protection of a quarantine of twenty-one days; but we were often reminded that, in spite of this twenty-one days' quarantine, Rinderpest entered the country. It has been stated, that Rinderpest would enter a country even if a military sentinel was placed at the distance of every twenty paces. At one time an opinion was expressed in the Prussian Ministry that if soldiers were placed so close together that they could shake hands and in the rear a gallows was erected and everyone should lose his head who passed them, many would nevertheless creep through their line. This was proved during the prevalence of the cholera in the year 1831, when Prussia had closed its frontier (not against Rinderpest; but against something else). But the fact is, the disease cannot be kept back. We have been reminded throughout these deliberations we ought to consider the procedure for the extirpation of Rinderpest in the interior of the country. Permit me, Gentlemen, to remind you also of something else. We must go further; we must not treat the question, as has been done till now, in a one-sided manner, and express the want and necessity of a ten days' quarantine, we must likewise state how it is to be put in practice. It has already been intimated that it must be brought into connexion with the "stamping out" system existing in the interior of the country. But something which has been lost sight of altogether is, that this question is closely connected with the supervision of cattle conveyance on railroads—the second question; herein is contained the principal point. When the requisite measures have been adopted there—those measures which are indispensably necessary, not only against Rinderpest but other diseases—then we could reduce at once the period of quarantine. I beg therefore to defend the assertion that there is no reason why we should retain a quarantine of twenty-one days' duration, as has been already stated in Hamburg. It is our duty to determine the duration of quarantine from a purely scientific point of view, and in accordance with the teachings of experience, we would go too far were we to enter into a further discussion, we would then not progress at all.

Director *Gerlach*.—Much has been asserted in opposition to what I have stated. A gentleman from Hungary has laid down the principle that quarantines are only productive of harm, that they are of no use, and in order to reduce that harm to a minimum the period of duration ought to be reduced. Gentlemen, if this principle be correct, then quarantines must be abolished, they must no longer exist; and to this I could perhaps agree. If all are of opinion that they have absolutely done no good, then without hesitation I would be in favour—more so than for half-measures, which are neither one thing nor the other—of their abolition. Secondly, it has been asserted that although I defended a quarantine of twenty-one days' duration, the disease has nevertheless appeared in Austria and Prussia repeatedly. This is quite correct; but, Gentlemen, if cases of Rinderpest have occurred in spite of quarantine, the question must be answered, Did they occur after the quarantine? This question has not been investigated; gentlemen have passed it by, and, as far as I know, no instance has been shown where a herd, after having been twenty-one days in quarantine, and leaving healthy, had spread the pest. I may err—I admit that cases may occur, exceptions are possible, but they must be very rare, for were it otherwise I should have known something of them. I invite gentlemen to produce facts as to a herd, after having been twenty-one days in quarantine, having spread the disease. Without that, the objection could with justice be raised that they have been infected after leaving the quarantine. Thirdly, has too much importance been attached to our ability of extirpating the disease more securely and quickly? A Prussian veterinary surgeon, Mr. Lüthens, stated he was in favour of a reduction of the quarantine period, because we are able to extirpate the Rinderpest. Now, Gentlemen, this statement must only be accepted conditionally. Our colleague, Jessen, has declared his inability to recognise Rinderpest at once, and added that it often appears so concealed that it is quite impossible to recognise it. It has been frequently asserted, even by the gentlemen from Hungary, that Rinderpest has been prevalent during several successive years—and we know that in many places where it appears it remains for years, and is only suppressed with great difficulty, after thousands of cattle have been destroyed and millions of money sacrificed. Is this the secure and certain system of extermination? Can you rely on it, and take away all means of security from the frontier? I do not think this would be the right plan. If we felt convinced that these cases would only appear on the frontier, then it would be possible to watch and perhaps detect the suspected cases. But if this is not done in its immediate vicinity, and we are without suspicion, then the disease gets spread abroad, and thousands of animals fall a sacrifice before it is recognised. Therefore too much importance ought not to be attached to the arguments brought forward for abolishing quarantine. These were the points upon which I intended to speak.

Mr. *Ernes.*—Gentlemen; with regard to quarantine I have very little to communicate. In England we have none, and for a very good reason. In London alone we import every week 4000 oxen, 7500 calves, 1800 pigs, and 10,500 sheep. Now if a quarantine were established there, what would be the consequence? Famine—and nothing else. We have, until now, relied on Germany, which has protected us during the last 120 years against Rinderpest. We had it in the year 1754. At that time it was prevalent during twelve years. Now, England has again, unfortunately, the Rinderpest, and you will enquire how it came to us. We imported only one cargo of Russian cattle; it consisted of Podolian oxen; these were brought per rail to Revel, from Revel per ship to Travemünde, and from Travemünde they were sent again by railroad to Hamburg. In Hamburg they were embarked and part of them went to Hull (?) and the other part to London. One animal died already at Revel, another was kept alive during the passage by means of brandy-and-water. The cargo which arrived in London was brought next day to the cattle-market in Islington, and there other cattle were infected. In one dairy alone twelve head were infected. It was thought the herds were poisoned, so quickly did they die. Professors Spooner and Simonds were summoned. Professor Simonds had investigated the disease formerly in Galicia; Professor Spooner recognised it at once as Rinderpest. On calling on me the next day he likewise saw an animal sick; it surely was Rinderpest. In London alone we lost more than 3000 head of cattle. There are 20,000 dairy cows in London. The British Government has been advised what to do, but in England this is not easily accomplished. We have advised that cattle from abroad should only be disembarked in certain towns, to have large stables and slaughterhouses erected there in order to kill the fat cattle at once, and let the cows and other cattle, which are intended for the country, pass through a quarantine of twenty-one days' duration. I believe the country would be sufficiently protected through this quarantine, or better still, if we could prohibit the importation of all Russian cattle.

Professor *Fuchs.*—I should like to hear from the previous speaker if the Rinderpest, which he mentions, is the same disease about which articles appear in the newspapers?

Mr. *Ernes.*—It is the same disease about which articles are written in the papers. But in England people refuse to believe it. It is nothing else but Rinderpest; it cannot be anything else if animals die of it in three to five days. Do you wish me to give the symptoms? But I believe the subject is not on the order of the day. To-morrow, when we speak about it, I will enumerate all the symptoms.

Professor *Fuchs.*—I should like to ask, then, if it is possible to observe and study the disease in London? as no police measures exist there, this would be difficult.

Mr. *Ernes.*—I have been inspector of a district, and have seen more than one hundred of the sick animals.

Professor *Fuchs.*—It would be necessary then to appeal to you to receive any information?

Mr. *Ernes.*—A veterinary professor in London came last Sunday to me, when I had to inspect some animals. He went with me and saw the animals. One was sick, one had died, and we found what is generally found by Rinderpest. I need not say what the Rinderpest is; we all know it.

Professor *Unterberger.*—I take the liberty to add a few remarks on the communication of the previous speaker. He stated, amongst other things, that the disease (I do not doubt it is Rinderpest, after what I have heard) which is prevalent in London was introduced there, as is pretended, by cattle bought some time ago by dealers in Revel, and imported thence into England. I must doubt this statement, so long as I am not supplied with more details. According to a statement of the *Augsburger Allgemeine Zeitung*, the disease had been prevalent among the dairy cattle in London for some time, similar in all respects as it appears in Russia and other States, and before any official report on the subject existed. The disease was already in London before the cattle mentioned were sent from Revel to London. I must further remark (and our colleague Jessen will prove it) that for a long time past, and more particularly this year, in the environs of Revel, in a city only about thirty miles distant from Dorpat, nothing has been heard of Rinderpest. How could the Rinderpest be imported from a country where it does not exist? I hope, therefore, that it will be clearly determined how the Rinderpest was brought to London. In the interest of cattle-breeders in our part of Russia, I deemed myself obliged to make this statement.

Professor *Jessen.*—I take the liberty to remark that it was stated the cattle alluded to had been brought to Revel by railroad; Revel has no railroads.

Professor *Unterberger.*—There is one projected; the construction of which will commence next year.

Mr. *Ernes.*—The cattle were brought to Riga.

Professor *Jessen.*—With Riga this may have been more likely.

Mr. *Ernes.*—It is Rinderpest which we have in England.

Mr. *Zlámal.*—It has been doubted that the disease may appear after a quarantine of twenty-one days' duration. During the year 1861, in September, I was ordered, on account of Rinderpest, to the Bihar Comitat, on the borders of Transylvania. A drove of 400 fat oxen, which had passed the Moldavian frontier towards Transylvania, had, on the third day after its arrival in Transylvania, one death, and in all more than 300 died. This is my experience. With us the Rinderpest was prevalent from 1828 to the year 1842. No measures could suppress it. A terrible anthrax occurred in 1842; it killed everything suddenly; therefore no further poison could originate. During the year 1856 the disease found its way from us into Galicia, where at the present time it still prevails. Therefore I only attach importance to these measures conditionally.

Director *Gerlach.*—I am obliged to the previous speaker for mentioning a case which apparently proves that Rinderpest occurs after twenty-one days. The supervision on leaving the quarantine must have been defective. At least this is my impression.

The *Vice-President.*—I believe it is now time to proceed with the motions of the Committee. We are travelling from the subject before us. Time is passing.

Professer *Unterberger.*—Gentlemen; in the Committee the first question asked was, Shall we agree to the motion of Professor Röll to reduce the duration of the quarantine period? The motions which two years ago were discussed in detail in Hamburg, led to the result that the majority were agreed. The propositions were made by Austrians for Austria; they were supported by the representatives of the kingdoms of Prussia and Saxony—those states which are most nearly concerned when the Rinderpest passes from Russia beyond the frontier. All these gentlemen know Rinderpest; they have studied the disease. On the other side our colleague Gerlach, who, as far as I know, has not studied the Rinderpest, and who represents a country which is situated at a great distance from Russia, appears, and is opposed to the Austrians reducing the quarantine, because the cattle-breeders of Austria would otherwise come to grief. I believe, gentlemen, that we ought chiefly to consider those motions which are proposed by Austrians for Austria, Saxons for Saxony, and Prussians for Prussia; if we agree to this, gentlemen, I believe we would very quickly come to a resolution.

Director *Gerlach.*—I ask leave to explain. I had no idea of protecting the Austrian cattle-breeders, but I spoke for the welfare of Germany.

The *Vice-President.*—I shall put the especial motions of the Committee which Professor Röll has communicated to the vote.

The *Reporter* (Dr. Röll.)—The first motion of the Committee is: "The Assembly may agree to determine the duration of the quarantine period—with regard to the experiences acquired about the incubation period of the Rinderpest amongst horned cattle coming from Russia and the Danubian Principalities and going to the west of Europe—to last ten days;" but this period is to be kept in future under all conditions of the state of health of the horned cattle in neighbouring countries, and without regard to the destination or breed of the animals. This is the first part of the motion. The second part contains the propositions which ought to be considered, chiefly in regard to the quarantine system. I believe that, with regard to the first point—

Director *Gerlach.*—I beg leave to propose an amendment to this question, namely, that in voting on this subject the names shall be taken, because the question is of great importance, and we should know who is in favour and who is opposed to it. Otherwise gentlemen who might vote against the motion might expose themselves to the reproach that they are ignorant of the disease from personal observation.

The *Reporter.*—I would agree to the amendment, but we have no list of names.

Director *Gerlach.*—A list might be drawn up.

The *Reporter.*—This would take some time.

Director *Gerlach.*—I beg my motion may be put to the vote.

The *Vice-President.*—I ask the members of the Assembly if they agree to give their names in voting for the first part of the motion of the Committee? Whoever is in favour of voting by names will rise. (Ten in favour of the motion.) It is a decided minority. Then we may bring the substantial motion to the vote. Those who are in favour of the motion, as communicated by Professor Röll, will rise. (They rise.) The resolution is adopted by a great majority.

Mr. *Zlámal.*—We could satisfy Professor Gerlach, if those few gentlemen who voted against the measure would kindly give their names. This would be the same as if we had all given our names.

The *Vice-President.*—A counter test? (Cries of "No.")

Director *Haubner.*—The gentlemen in the minority should give their names.

The *Vice-President.*—This is better still. Therefore, gentlemen who have voted against the motion will give their names.

Professor *Fuchs.*—On account of the added sentence in the — (Cries, "Without giving any reasons")—I say I am opposed to the motion on account of the supplementary phrase that this consent shall be binding on all other States. (Cries, "No such a thing; we have no right to do so.") But it has been said. I beg of you to read the motion again.

The *Reporter.*—I believe I have read very distinctly. (Reads.) The Committee has resolved to propose to the Assembly to agree that the period of the quarantine, &c., in the neighbouring foreign countries, which means Russia and the Danubian Principalities, &c., is to be kept up. (Dr. Fuchs: I am in favour of that.) The following gentlemen have given their names as having voted against the motion :—Tscherning (Copenhagen); Gerlach, Fürstenberg, Winkler, Dr. Damman, Dr. Wernäer (Jena); Renner (Prussian Silesia); Seer, Professor Müller (Berlin); Professor Perosino Do gentlemen desire that I should again read the other recommendations of the Committee with regard to the regulation of the quarantine system, and will they vote seriatim point after point? (Reads II. 1 of the motion.)

The *Vice-President.*—Those in favour of this point will rise. (They rise.) It is adopted.

The *Reporter* (reads II. 2 of the motion.)—This point is general, and would serve as a basis for instructions for a quarantine.

The *Vice-President.*—Is this point adopted? (The Assembly rises.) It is.

The *Reporter* (reads II. 3 of the motion.)

The *Vice-President.*—Are there any objections? (None.)

The *Reporter* (reads).—Fourthly—(he is interrupted by—)

Professor *Jessen.*—It appears to me that after the words "necessarily instructed" might be understood "routiniers." Perhaps "scientifically educated" or "properly examined" would be more secure in this respect.

Mr. *Zlámal.*—The question is with regard to educated veterinary surgeons, who are at the same time practically instructed in this respect. (Cries of "Having a diploma and being well instructed.") The veterinary surgeon possesses a diploma.

Professor *Hertwig.*—Gentlemen; permit me to say a few words. If I mistake not, the phrase "necessarily instructed" emanated from me yesterday during the preliminary deliberations of the Committee. I meant to express that it was not necessary that purely scientifically educated veterinary surgeons should be employed, but men who are practically instructed in the knowledge of Rinderpest, and in matters belonging to the quarantine system. (Cries, "This is so.") Every veterinary surgeon, even if he be brimful of science, does not know practically what to do in a quarantine establishment, and with regard to quarantine matters. This must be acquired. And if it should come to a special deliberation on this point—but which I believe is not at present our business—I shall propose that veterinary surgeons who have merely passed their examinations for the purpose of obtaining an appointment shall be sent by Government from time to time, to quarantine establishments to be properly instructed. This was my meaning.

The *Vice-President.*—It is expected that each Government will take care to appoint none but useful men to the establishments, and that instructions will be given with regard to this. Besides, the point has already been decided by vote.

The *Reporter* (reads II. 4 of the motion).—This is a condition concerning details which is already contained in the resolution of the Assembly.

The *Vice-President.*—This point meets no opposition? (None.)

The *Reporter* (reads II. 5 of the motion).—I would not object if it stood: "Disinfection of the cattle on entering and leaving the quarantine establishments."

Professor *Fuchs.*—I take the liberty to observe that I have not proposed a motion in regard to this subject; but I do so now. It is this: That all cattle, and all men and articles which have been brought into contact with them, may be disinfected previous to their admission into the quarantine establishments. A second disinfection, to take place when men and animals leave the quarantine, I consider only necessary when disease has appeared in the quarantine. (Cries, "Quite right.")

The *Vice-President.* — Does the Assembly agree to this? (Assent.)

Mr. *Zlámal.*—I must, I am sorry to say, again oppose the use of the word "disinfection." When animals are admitted into quarantine, and are healthy, I cannot think of "disinfection." (Cries, "Cleansing.") To this I do not object.

The *Reporter.*—The expression is in common use. The veterinary police ought to have free scope.

Professor *Fuchs.*—Cleansing is adopted on the supposition that the infecting substance is present.

The *Reporter.*—"The disinfection (cleansing) of all animals on entering the quarantine establishments, and likewise on leaving, should a case of Rinderpest have occurred during their stay."

Professor *Hertwig*.—Excuse me, Mr. President. Already in the first article it is said, "water . . . . for cleansing."

The *Reporter*.—I think the points Nos. 4 and 5 ought to be embraced in one instruction. It would be better to pass them by entirely, and only accept the points Nos. 1, 2, 3, namely: "Quarantine establishments ought to be constructed in such a manner that they satisfy the demands of a veterinary and sanitary police, and ought to be subjected to the requisite veterinary supervision;" and, "that necessarily instructed veterinary surgeons ought to be appointed for this purpose." This would be sufficient. The other points would be subject to the regulations. Points four and five might therefore be omitted. With regard to the fourth point, concerning the introduction of a cattle registration in the frontier districts of the eastern borders, and the appointment of veterinary surgeons for this purpose, and to watch over the state of health of the cattle there, I am greatly in favour of its adoption. This measure appeared to the Committee as one of the most important for the prevention of smuggling horned cattle; because the people on the frontier, the greater as well as the smaller landed proprietors, stand in the most intimate relation to the cattle dealers, and, by granting them so-called property-certificates, they certify smuggled cattle as home bred. The cattle smuggled by this means into the country pass then as native cattle, are driven on the roads without impediment or obstacle, and thus often spread the disease throughout the country. This is certainly a burdensome measure to the cattle proprietor; but it is their own fault that the measure should have been considered necessary. It has partly been introduced already into Galicia and the Bukowina. But, unfortunately, this cattle conscription is an extra part of the duties of finance officers, who have no interest whatever to watch over the cattle with regard to their numbers, or with regard to their health. For this reason the Committee considered itself bound to propose that in the frontier districts—partly to determine the number of cattle, partly to watch over the state of their health, and to certify cases of disease, &c.—veterinary surgeons should be appointed. (Cries, "Very good.") The details ought to be a subject for further deliberation; but the principle, as something essentially practical, ought to be adopted under all circumstances.

The *Vice-President.*—Is there any objection to the adoption of No. 6 point?

Professor *Hertwig.*—I would beg permission to add something, and ask the Assembly to agree to it. We have not decided during our deliberations on which side of the frontier these measures which have just been discussed should be employed. Certainly, it seems evident that the Austrian frontier is understood. But it would likewise be to the purpose if, on the other side of the frontier, in Russia as well as in Prussia, these measures were recognised as useful.

The *Reporter.*—It is stated on the "eastern" frontier; this would be for Austria and Prussia. For Russia, it would be the "western" frontier.

Professor *Jessen.*—This would be likewise very important, as far as we are concerned. Could it not be altered to "on both sides of the frontier"?

The *Reporter.*—Then the countries ought to be enumerated along the extent of the frontier: Austria, Prussia, and Russia.

Professor *Zangger.*—It does not appear advisable to establish quarantines in that country which principally exports. I do not think it would be to its interest to watch over these quarantines very carefully. Russia fears no danger; the infected cattle can always leave, and to have the quarantines watched over by one who has no interest in their being carefully guarded seems of no great value.

Professor *Unterberger.*—The Rinderpest comes sometimes from Prussia and Austria to us, although at first it certainly originated with us. I therefore agree to the proposition of one of the previous speakers that Russia should be placed in the same position as other countries. With this addition I believe we would greatly promote the object intended, especially if we say "a sufficient number of well-salaried veterinary surgeons," &c.

Professor *Zangger.*—I do not object to it.

The *Reporter.*—It would then stand thus: "Introduction of a cattle subscription in the frontier districts between Austria and Prussia on the one hand, Russia and the Danubian Principalities on the other hand, and appointment of," &c.

The *Vice-President.*—May this be considered as adopted? (Assent.)

The *Reporter* (reads).—Seventh: "The most careful supervision of cattle in the interior of the country." I believe this to be an integral part of all proceedings on the frontier.

The *Vice-President.*—There is no objection? (No).

The *Reporter* (reads II. 8 of the motion).—Lastly, a wish has been expressed by the Committee to have a compulsory system of insurance established. The idea was, as colleague Zlámal has previously stated, that by taxing every head of cattle to a trifling amount, a fund may be obtained sufficiently large to enable us to use, on every appearance of Rinderpest, extirpation measures so quickly and to such an extent that well-founded expectations might be entertained as to arresting the disease, thereby preventing an enormous loss of cattle and the extension of the disease to the rest of Europe. Whatever this tax is to be named, if "forced cattle insurance," or "cattle tax," or "cattle quarantine fund," or "epidemic extirpation fund," may remain for the present undecided; the idea itself, the foundation of such a fund for the purpose of extirpating Rinderpest, may be admitted by the Assembly as desirable.

Mr. *Pabst.*—I consider this question so important, that I cannot, without more mature deliberation, recommend it for adoption. I, personally, am opposed to all kinds of compulsory measures. Voluntary insurance ought to be recommended under all circumstances. This question has been discussed of late in several places in Austria, and the result arrived at was always the same, namely, that no coercive measure can be successful. I would therefore recommend that the question, previous to its adoption, be more thoroughly investigated.

The *Reporter.*—Permit me to give one word of explanation. I do not think that the circumstance that the Lower Austrian Landtag has for the present refused to grant this measure, should prevent us from expressing our opinion. If the legislature will not entertain the subject, well and good; but I believe our views may be nevertheless freely expressed.

Professor *Haubner.*—I believe it would be most to the purpose if we simply proposed, or recommended as desirable, the creation of a fund to indemnify for losses which may be occasioned through the prompt extirpation of the disease. This I recommend. As to how this fund should be raised, we ought not to concern ourselves. In Prussia there exists, so far as I know, two modes of procedure; in Silesia there is a compulsory insurance, and in the western part of Prussia the district exchequers are obliged to indemnify for all losses occasioned by the extirpation of the epidemic. Cattle proprietors are not the only persons who contribute to these district treasuries, but every tax-payer is liable. The same question was brought before the Landtag in Saxony. It was proposed to introduce compulsory insurance; but the chamber declared: "We consider the Rinderpest as a national calamity, therefore we will pay the expenses from the national treasury; because the loss which the proprietor sustains in a direct manner, we feel indirectly."

Mr. *Seifmann.*—The same measure, namely, compulsory insurance, has existed in Poland since 1856, and it has proved most beneficial. It has happened that 20,000 head of cattle have been lost annually in the country, and in the year 1831 we lost even above 100,000 head. I can state this accurately. During last year we obtained very good results. The insurance was established in 1856, but at a time when Rinderpest had already extended considerably; that year, therefore, I did not take any account, and more especially because the use of the club was very frequent. But in the year 1857, 104 had died, 2233 were killed, and 85 recovered; during the year 1858, 241 died, 1730 were killed, and 17 recovered. In the year 1859 the disease was limited to one place: 33 died, and 247 were killed. During the years 1863 and 1864, the results were not so good; this was not the fault of the measure, but must be ascribed to the circumstance that it could not effectually be carried out. With the example of Poland before his eyes, one is obliged to confess that a similar system of insurance, namely, a compulsory one, works very well.

Mr. *Lüthens.*—I propose that it would not alone be "desirable" to have a fund for the purpose of granting indemnities for quickly extirpating the epidemic, but that the establishment of this fund is "very necessary." In Prussia, at least in Silesia, compulsory insurance exists; every proprietor is obliged to contribute. This institution is no burden to the proprietors, because the actual contribution is very small, in consequence of the insurance being managed by Government free of cost. The cattle proprietors of Silesia seem to be perfectly satisfied with the system of compulsory insurance.

The *Reporter.*—Are there any objections to the adoption of this point?

The *Vice-President.*—Are there any obstacles to the adoption of Motion III.?

Professor *Zangger.*—I beg to propose that we express our convictions generally that for the execution of strict extirpation measures, and for the losses which these measures inflict on individual cattle proprietors, they should receive a partial indemnity. We must leave it to the Governments to decide whether the money required for this purpose be drawn from a private fund or from the public treasury.

Mr. *Zlámal.*—With us something more is intended; a fund is suggested, from which losses are to be indemnified, and which would serve to encourage the breeding of cattle. I believe we could entirely omit the word "insurance;" it is not pointedly mentioned, but it is the fund as a means of liquidation we require. But I believe a wish——

The *Vice-President.*—Is there any objection to the granting of this wish?

The *Reporter.*—I believe we could omit all reference to the manner in which this fund should be created. In that case the motion would stand thus: "The Committee considers it especially desirable that, by means of the formation of a fund, the possibility were offered to extirpate the Rinderpest as quickly as possible through killing all sick and suspected animals, and thus prevent the contagion being carried to the West of Europe."

(A voice from the centre: "Would it not be possible to say, 'essentially necessary'?")

The *Vice-President.*—Every desire cannot be gratified. As nobody seems to wish to make any further remarks, the II. 8, according to the motion of the Committee, and III., according to the amended form, are adopted.

The *Reporter.*—So far, we have disposed of the first part of the first subject of the programme. The second part is as follows: How, during the prevalence of Rinderpest in a country, are we to proceed with regard to international commerce with animal produce? The Committee agreed to the following motions: 1. The following articles may be imported free and without being subjected to a process of disinfection: dried cattle-hides, horn-points, dried bones, salted and dried guts of cattle, melted tallow in vessels, cow-hairs and pigs' bristles, and sheep's wool in bags. The Committee arrived at their conclusions after various considerations. They thought there could be no objections raised against the free importation of dried bones, dried and salted guts, melted tallow in vessels, and sheep's wool in bags. The only articles, against the free entrance of which objections might be raised, were perhaps completely dry cattle-hides and horn-points. Now, the completely dry cattle-hides, the Committee believe, may be imported without danger, provided they are thoroughly dried. In favour of this conclusion, may be stated, the experiences acquired in Russia, by attempts at infection with dry hides, in contradistinction to wet or green ones. The late Director Renault has, in his work, 'Typhus contagieux des Bêtes bovines, Paris, 1860,' treated on raw animal produce with regard to commerce. In accordance with all experience, dried hides were classed with articles completely free from danger. In the Austrian quarantine establishments for cattle, an order for the disinfection of dry hides still remains in force. I have made enquiries if it has ever happened that a case of infection has been traced to these supposed disinfected skins, but not one could be stated. The disinfecting process is carried on by means of a solution of chloride of lime, in the proportion of about two loths (one ounce English measure) of chloride of lime to three quarts of water; the dried skin is spread out and sprinkled with this mixture, the hairy as well as the fleshy side; for this purpose a birch broom is used, which is passed several times across the hide; if the solution is poured over the inner side of the skin, it forms drops which at once flow off, the birch broom is carried several times across, and the hide is considered disinfected. But, in my opinion, the skin remains exactly in the same state as previous to the sprinkling. The Committee believed that dry cattle-hides may safely enter as articles of commerce, especially as they are generally transported in large quantities. Horn-points may likewise be safely admitted, as the compact and firm construction of the points renders adhesion of the contagium scarcely probable. I do not know if any gentleman wishes to speak on this portion of the subject. The other methods which we propose already contain measures for disinfection.

The *Vice-President.*—If there is no objection ——

Director *Zangger.*—It appears to me that the subject is of such great importance that it should be considered, if but for one moment. I request, therefore, that the proposal of the Committee be read again, that the Meeting be then adjourned, and that the discussion of the subject be proceeded with to-morrow.

Dr. *Haubner.*—I beg that this motion be put to the vote.

The *Vice-President.*—Professor Zangger moves, that the proposal of the Committee be only read to-day, and that the deliberation of the subject shall commence to-morrow. Gentlemen in favour of the motion will rise. (They rise.) The majority is in favour.

The *Reporter.*—The result of this vote seems to be doubtful. I beg therefore that the counter-vote may be employed.

The *Vice-President.*—I solicit the counter-vote. (Several members leave the room.) Whoever is against it will rise. It is the minority.

The *Reporter.*—Point 2. Entire horns and feet must be treated with a concentrated solution of chloride of lime, or of common salt solution. 3. Melted tallow in skins would have to be disinfected, that the outer covering is washed with a solution of concentrated chloride of lime or common salt. (Addendum 1, 2, 3. As a matter of course entrance to these articles should be refused if they are imported from infected regions or townships). 4. Fresh bones, fresh hides and guts, raw tallow, raw flesh, raw sheepskins, although they may be dry, are during the prevalence of Rinderpest, if they come from infected regions and places, not admissible as articles of commerce.

Dr. *Röll* (taking the chair).—The subject for discussion to-morrow, when we shall again meet at nine o'clock, will be: Continuation of the deliberation on the first subject of the programme, and, according to admissibility, the commencement of the deliberation on the mode of disinfecting, the means used for the conveyance of cattle and the supervision of the herds conveyed by these means. The meeting stands adjourned till to-morrow.

THIRD MEETING, 23RD AUGUST, 1865.

President, Dr. RÖLL; *later*, Dr. VON HERING. *Secretaries*, Drs. FORSTER and PROBSTMAYR.

The *President.*—Professor Forster will be kind enough to read the minutes of yesterday's meeting.

Dr. *Forster* reads.

The *President.*—Are there any objections?

Dr. *Werner.*—My name appears in the minority.

The *President.*—It is the name of Dr. Wernaër from Jena, and not Dr. Werner from Lemberg.

Dr. *Jessen.*—I beg permission to make a short remark. I might have certainly made it yesterday; but the idea only struck me this moment. In the last point it is stated: "It would be desirable that a tax were levied for the extirpation of Rinderpest by means of killing sick animals." Now, it might happen that in other states the killing of animals would not be recognised as a means of extirpation. I should wish to have the sentence altered, if possible, in this manner, that "the killing" may be included, but that "in another way" may be added.

The *President.*—I think this can on no account be inserted into yesterday's minutes, as they only describe the *real* proceedings of the meeting. I do not think we are justified in altering anything to-day which we considered correct yesterday. If another resolution is passed, it must be inserted in the minutes of to-day. If against the verbal composition of the resolution as passed yesterday there are no objections, we must consider the minutes as passed.

Dr. *Jessen.*—I did not raise the objection yesterday because I did not think of it.

The *President.*—Then there is nothing to alter. If another resolution is passed to-day, it must be inserted in to-day's proceedings.

Dr. *Fuchs.*—I desire to address the Assembly.

The *President.*—With regard to a correction of facts of the minutes?

Dr. *Fuchs.*—Yesterday I made a remark respecting the determination of the method in which the disinfection in quarantine establishments ought to be conducted; the President thought fit to prevent further discussion, observing that disinfection belonged to the police orders, and as such had been admitted into the protocol. But as the motions of the Committee were put to the vote, it might seem that the entire Assembly agreed to them. I for one did not agree to the motions with regard to disinfection, and proposed a distinct motion in reference to this subject. If the Commission declares that, in accordance with my motion, the subject belongs to the police directions, I am satisfied; if not, I must beg that my motion be put to the vote.

The *President.*—I must here make a remark which concerns paragraphs 4 and 5, which the Assembly was convinced belonged to the instructions concerning the mode of procedure in quarantine establishments. In the official report, based on the stenographic protocols, the observations of Professor Fuchs will be stated; it will further be stated that the Assembly has adopted the resolution, with this remark, however, that it ought not to be embraced amongst the general principles which the Assembly intended to express, but amongst the instructions or regulations, if they might so be named, concerning the mode of procedure in quarantine establishments.

Dr. *Fuchs.*—If this is done, I am satisfied.

The *President.*—In the protocol edited by the secretaries, nothing, in my opinion, ought to be admitted, beyond the outline of the debates and the resolutions.

Dr. *Gerlach.*—In the division which took place yesterday in reference to the reduction of the quarantine, more gentlemen voted against the measure than are named in the protocol. I therefore trust that this observation will be inserted into the protocol as well as the stenographic report.

The *President.*—The list of members was yesterday taken as the various members rose and gave their names; these names were written down:—Tscherning, Winkler, Fürstenberg, Gerlach, Damman, District Veterinarian Renner, Wernaër, Seer, Müller from Berlin, and Professor Perosino. (Cries: "Several remained sitting.") They have not given in their names. Yesterday—and I may appeal to the secretaries, and believe the stenographic report will likewise prove it—President von Hering requested all gentlemen opposed to the motion to mention their names.

The *Vice-President.*—If any of the gentlemen omitted to mention their names it is their fault, and not the fault of the secretaries. They were requested to do so.

The *President.*—I must protest against proceeding in this manner. Gentlemen opposed to the motion were distinctly requested to mention their names, and only those whose names I have in this list did so. I cannot therefore permit any alteration of the protocol in this respect, nor take cognizance of a protest which is not based on facts. (Cries: "Quite correct.")

Mr. *Lüthens.*—I expressed myself against the statement in the protocol, that it would be "desirable" to raise a fund in order to proceed with the extirpation of Rinderpest more energetically. I desired that it should be stated it would be "indispensably necessary" to possess such a fund.

The *President.*—I beg to state that the separate observations of speakers cannot be inserted in the daily official protocol. In the stenographic report, gentlemen will find nearly every word which has been spoken. If no further observations or corrections of facts are made, I pronounce the protocol as passed. Several communications have been received, which I shall bring to the knowledge of gentlemen. Professor Tamberlicchi has submitted a pamphlet, "Relazione sulla Peste Bovinal nell' Agro Romano, correndo l' anno 1863," which may be found in the reception-room; further, a written communication, "Communicazione al Congresso relativa ai Bestiami dell' Agro Romano del Professor Tamberlicchi, rappresentante il Governo della Sante Sede." Mr. Ernes has presented several circulars issued by the British Government, concerning arrangements which had been made in consequence of the prevalence of Rinderpest at the present time in England. These circulars are likewise to be found in the reception-room. We have also received a letter from the "Società Nazionale de Med. Vet." in Turin, wherein the President of the Society, Cav. Dottore Balestrino, informs the Assembly that Professor Fr. Papa, their Secretary-General, who has honoured us with his presence since the commencement of the Congress, has been nominated as representative of the before-mentioned Society, and sends his credentials; at the same time, the President of the Society wishes, on behalf of the Italian Veterinarians, success to the Congress. There have also been received:—Three copies of a translation, by Cav. Dr. Balestrero, of my dissertation on the Rinderpest-like disease of sheep and goats, under the title, "La Mallattia delle Pecore e delle Capre simigliante alla Peste Bovina." As a desire has repeatedly been expressed to introduce subjects after the debates on the questions set down in the programme are exhausted, I have to request that those so disposed should give a short notice of their intention, either to myself or to Professor Hering, in order to enable us to determine the order of the day of the meeting, which might be held for that purpose after the subjects in the programme are exhausted. I further request those gentlemen who intend to take part in the excursion to Altenburg, which may afford many subjects of interest, to be so kind as to subscribe their names in the lists to-day, because they must be closed and preparations made in Altenburg to meet the requirements of the excursionists. Yesterday, Counsellor of State Halicki, in expressing his views on the quarantine system, proposed that the Assembly should adopt a vote of thanks to Her Imperial Highness the Grand Duchess Helena Paulowna, for the assistance she had rendered in carrying out inoculations in Russia; thus contributing to the furtherance of veterinary science in general, and to the knowledge of the pathology of Rinderpest in particular. This motion ought to be put to the vote, and as I am of opinion that the endeavours of this exalted lady have done much to further our interests, and that we, by means of continued inoculation experiments in Russia, without regard to anything else, have received new facts with regard to the incubation period of Rinderpest, to which we yesterday very frequently adverted, I therefore take the liberty to put this motion to the vote: That this Assembly is of opinion that the thanks of the Congress be tendered to Her Imperial Highness the Grand Duchess Helena Paulowna, in consideration of the services rendered.

Dr. *Zangger.*—Mr. President; against the motion in itself I have no objection. But it has been communicated to me that several gentlemen, and Professor Reynal in particular, have expressed a wish that the question of inoculation for Rinderpest and the experiences acquired in this respect in Russia, may be particularly referred to in the course of our proceedings. If this should be the case, and if we deliberate separately on the reports and communications respecting the inoculation of Rinderpest, we would then learn more accurately to whom thanks ought to be tendered. If I remember rightly, Mr. Ernes likewise expressed a desire that this subject should be brought forward. I wish, therefore, should this be the case, that the division on this motion be postponed till then.

Dr. *Hertwig.*—Gentlemen; as it is still uncertain whether a discussion on inoculation will be possible, and as the subject has been brought forward to-day, I believe it would be well, and even seemly, if we adopted the proposal at once. I do not think there is one in the whole Assembly who would raise any objections to it; and, therefore, I beg the President to ask the Assembly to express its gratitude by the members rising to their feet.

The *President.*—I considered it right and proper to introduce the motion at this time. It depends entirely on the Assembly whether they agree to it or not. I put it to the vote, and request that all who are in favour of its adoption will rise. (The Assembly rises.) The motion is adopted.

Dr. *Gerlach.*—I wish to submit an addition to the motion just adopted. I believe I express the wishes of all members of the Congress if I request the President to tender to Counsellor of State Jessen the thanks of the Assembly for his zealous endeavours on the question of inoculation.

The *President.*—Gentlemen who are in favour of Mr. Gerlach's motion will rise. (The Assembly rises.)

Dr. *Jessen.*—I beg leave to decline this vote of thanks. I quite agree—and have proved this by my rising—that gentlemen should tender their thanks to the exalted lady who has done so much for the furtherance of inoculation, and, through this, for the progress of veterinary science; but I do not think it would be advisable in any international assembly to express thanks to an individual member. Greatly, therefore, as I value the honour, I nevertheless, for the reasons mentioned, beg to decline the acceptance of any vote in my favour.

Dr. *Rawitsch.*—Gentlemen; may the result of inoculation be what it will, this much must I, as a Russian veterinarian, confess in this Assembly, that we Russian veterinarians are all under great obligations to our honoured friend, Professor Jessen, because he was the first to investigate this subject, and has, in order to solve the inoculation question, attempted many experiments, through which much that is new has been learned with regard to Rinderpest. The Russian Government has spared neither labour nor expense in sending learned, competent, celebrated men into the steppes, in order to study the Rinderpest. In this respect, I believe I am called on, on behalf of all Russian veterinarians, to express here publicly our sincere and heartfelt thanks to Counsellor of State Professor Jessen.

The *President.*—We will now proceed to the order of the day. I shall continue my report on the subject on which the Congress deliberated yesterday. (Professor von Hering takes the chair).

The *Reporter* (Dr. Röll).—Gentlemen; I had the honour yesterday to read to you the second part of the Committee's Report on the first subject of the programme. It concerns the mode of procedure with regard to animal produce in international commerce when Rinderpest is prevalent in a country. Gentlemen will, perhaps, remember that we classed raw produce in several divisions; such which, as articles of commerce, might pass completely free; then, such which had to be subjected to a previous disinfection; and, lastly, such to which entrance ought to be refused. To the first category belong "perfectly dry cattle hides." I believe it would be best if we deliberate separately on each article. First, I must mention that I have unsuccessfully looked through the Austrian and Prussian Veterinary Law for an order concerning the disinfection of cattle hides. In the Prussian collection of Veterinary Laws it is stated, in § 2 of the order of the 2nd April, 1803, and of the 27th March, 1836:—"If, in the neighbouring foreign countries, Rinderpest has made its appearance, then may from them . . . . cattle hides only when they are completely hard and dried . . . . be brought across the frontier, and in this state into the interior of the country." Therefore, if in neighbouring countries Rinderpest has appeared, only completely dried cattle hides may be exported thence, and brought into Prussia. The entering, or permission to enter, is refused to so-called "wet" hides. § 3. "If an infected place in a foreign country is only three German miles or less distant from the frontier, then on a distance of the frontier decided by the provincial authorities, at all events on that which is so nearly situated to the infected place: (*a.*) Horned cattle . . . . must not be admitted; (*b.*) likewise, dried hides . . . . if they are supposed to come from infected places;" they are then only refused admittance when they come from infected places. § 4. "If Rinderpest appears at any place in a foreign country which is situated closely to the frontier of Prussia, or even borders on a Prussian place, then the authorities are obliged to extend the previously stated measures to an entire prohibition of all and every intercourse with the infected place." This order is therefore connected with the total isolation of an infected place from the neighbourhood. The Austrian regulation concerning epidemics states, § 43, (*a.*) "Cattle hides can only be permitted to enter across the frontier when they are perfectly hard and dried. Fresh skins must, previous to their admittance, be first disinfected with the vapours of sulphuric acid, in the manner described in § 29." There exists, therefore, as far as I can see, no order whatever that perfectly dry skins must be disinfected. If nevertheless they are supposedly disinfected, as is done in the Austrian quarantine establishments, this is a custom dating from an unknown time. I therefore beg, on behalf of the Committee, to propose that "perfectly dry cattle hides," may be treated in international commerce as entirely free, and request the President to introduce first the debate on this subject; because, I believe, Professor Rawitsch is in a position to help us to a prompt decision in this respect, by communicating the results of experiments he has made with hides treated in various methods.

Dr. *Rawitsch.*—Gentlemen; the disinfection of skins of cattle which have died of Rinderpest is not only of vast importance to commerce, but is of great value to the veterinary police, especially to those of Russia; therefore I take the liberty to mention a few facts which may tend to assist us in arriving at a quicker solution of the question. The principal aim is, to simplify those means for the disinfection of skins which until now have been in use, and to render them less expensive. Although it is possible to erect establishments on the frontier, when large quantities of skins are transported, for their disinfection by means of chemical preparations, yet it would be very difficult to employ in separate cases the same means for the disinfection of hides in small townships or villages, in order to render them fit articles of commerce. In consequence, there exists a law in Russia which is rather rigorous, namely, to inter the carcases of animals which have died of the Siberian plague and other very contagious diseases, together with their previously-cut hides. That this law exists only on paper, and is never practically executed, is well known. Although the police may insist that the dead animal shall be buried with the skin, the proprietor will find an opportunity to exhume the animal during the night, take the skin off, sell it as quickly as possible, and by this means propagate the Rinderpest. It is necessary to know all the circumstances—I speak only of Russia—to see of what great importance the hide is to a poor proprietor. My honoured colleague Jessen can bear evidence to this. We were present together at a village, when a poor widow entreated us on her knees to let her keep the hide of her only cow, which had died, and which was the only article left to her. Of course we were obliged to refuse, the law did not permit us to act otherwise. Therefore, the question is, to discover some means by which the disinfection of hides may be simplified, and at the same time afford a guarantee against the further spreading of Rinderpest. It is thoroughly understood that this question can only be solved by means of experiments. Russia, the country of Rinderpest, and, alas! of many other epizootic diseases, was likewise the first country in Europe to set vigorously about devising remedies. During the last twelve years, in almost every part of that great empire, efforts were made to obtain a thorough knowledge of the contagium of Rinderpest. These attempts were made in the far East, in the steppes of the half-savage Khirgisians, as well as in the highly civilised provinces on the Baltic; in the South, on the shores of the Black Sea, as well as in the North and in the centre of the empire. In the course of twelve years, during which many thousand head of cattle have been inoculated, the inoculations have furnished results, which will perhaps be of interest to the Assembly. Although these measures were only intended to determine facts with regard to inoculation, yet they have augmented our knowledge in many other respects. With reference to the contagium of Rinderpest, we now know that it can easily be destroyed. This is not the place to enter into a more detailed discussion of this subject, and it would only be presuming on the patience of the Assembly were I to enter into a disquisition on the volatility of the contagium of Rinderpest. This subject is still very obscure; but this much is certain, and experiments have distinctly proved it, that the Rinderpest contagium, when exposed to the air, loses its strength. I will mention facts. On the 20th of June, 1863, Professor Jessen and myself obtained at Sars Koge-Selo, virus from animals which were very sick; on the 4th of July we arrived in Orenburg, and a certain number of cattle were inoculated with this matter, without producing any results. The same cattle were at a later period inoculated with fresh virus, and then we had sufficient opportunity to learn the pathological anatomy of the disease. Many such cases occurred. Once we obtained some virus in a village; a few hours later we inoculated with it, without producing any result. I come now to the subject under notice. Many experiments were made with dried skins and with hides which had been hung up in the open air and exposed during twenty-four hours. These skins never produced a case of infection. On the same cattle were afterwards laid fresh hides, or they were inoculated with fresh virus, and they died. I appeal to Professor Jessen, who will confirm my statement. I believe, if we have exact information, that during twelve years not a single case of infection has occurred by means of dried skins, we can raise no objection to the adoption of the motion of the Committee.

Dr. *Reynal* (in French) remarked that before entering into a discussion on the means of disinfection, the various methods in which contagious typhus can be spread in countries where it is generally prevalent, and likewise in those where it does not exist, without having been imported previously by means of infection, ought to have been investigated.

Dr. *Jessen.*—I beg leave to say a few words with regard to the disinfection of skins. The experiments which have been made in this respect have been already mentioned. I must state that every hide which has been dried at a heat of 40° to 50° Reaumur, is incapable of producing infection. But I do not think that everything in this respect may be discovered by means of experiments. Hides of animals which have died in the steppes may be thoroughly disinfected, and without danger, after being dried during forty-eight hours, by a heat of 40° Reaumur. But the case may be different with hides from the North, on which the drying process is carried on more slowly. This can never be securely determined by means of experiments. Professor Brauell has made many attempts with the inoculation of dried skins and dried hair; but whenever they were inoculated after forty-eight hours no case of infection was produced. No practical veterinarian will at present doubt that, by means of dry hair as well as dry hides, anthrax may be propagated. I ask, can one instance be mentioned in which, by means of the influence of dry skins, or their export beyond the Russian or any other frontier, the Rinderpest has spread? If one instance cannot be enumerated, then dry skins ought under all circumstances to be imported free.

The *Vice-President.*—The Assembly has just endorsed the first part of the motion of Professor Reynal to remain strictly by the programme, therefore I take the liberty to put the motion which has just been read to the vote. Perhaps the reporter will be kind enough to recall it to your memory.

The *Reporter.*—It must be divided. "Perfectly dry cattle hides, free from disinfection, ought to be admitted in trade."

Dr. *Jessen.*—I beg leave to remark that it would be more to the purpose to add the word "hard," because, through this, is pointed out that they are perfectly dry.

The *Vice-President.*—Does the Assembly agree to this motion?

Those gentlemen who are in favour will rise. If no objection is raised, I suppose it to be ——

Dr. *Rawitsch.*—I should like to have "aired" added to it.

The *Vice-President.*—If no objection is raised, I consider the motion adopted.

Mr. *Lüthens.*—I would beg to remark that the expression "dry" includes the idea of "hard."

The *Vice-President.*—It does no harm to add the word "hard." It may be supposed that no objection exists against the proposal. (No one rises.)

The *Reporter.*—Likewise "horn-points."

The *Vice-President.*—There seems no objection to this.

The *Reporter.*—"Dry bones, salted and dry cattle-guts." We have admitted "salted and dry cattle-guts," because Medical Counsellor Haubner stated already in Hamburg that they are an important article of commerce.

Dr. *Zangger.*—I move to omit "guts" entirely. I have already some apprehension that a great number of articles coming from cattle suffering from typhus may be admitted into circulation without any precautionary measures. I have no experience in this respect, and therefore rely on those gentlemen who come from countries where Rinderpest has been observed when they state that dry skins, dry horn-points, and dry bones, may be permitted to pass; but I have apprehensions with regard to "intestines." Judging from what I have seen of Rinderpest, and from what gentlemen have communicated about it, the mucous membrane of the intestines is the particular seat, the locality, where the principal phenomena of the disease appear, and where the most essential part of the process of the disease is discernible. If we admit guts as articles of commerce, we have no reason to refuse admittance to any other part of the animal. I may be answered, and with some show of reason, that these guts are dried first, and that the process of drying destroys the contagium. If this could be proved so as to produce conviction I would not object to it; but until now, Gentlemen, the discussion has not furnished this proof. I do not think this has even been supplied with regard to hides, and I, for my own part, do not believe that freeing these articles from all restrictions is of great value. Why should Russia, Hungary, and other places where the Rinderpest is prevalent, not cure the animal hides, and bring them as leather into the market? Why can they not make pits in these as well as other places? Why do they want to export the raw skins? The people ought to make use of this branch of industry, and bring the produce into the market. Gentlemen, I took part yesterday and to-day in the deliberations of a commission, which has to submit motions regarding the disinfection of railway waggons and ships which have to convey cattle. We shall propose motions to you in this respect. But, Gentlemen, we should be guilty of a great contradiction if on the one hand we demand guarantees that railway waggons which have been in contact with sick animals shall be disinfected previous to their returning to us, and, at the same time, permit the admission of intestines of animals into commerce, if they are only dried.

Dr. *Rawitsch.*—Not dried; salted.

The *Reporter.*—We do not intend to propose that guts of animals which had the disease, or which died of Rinderpest, should be admitted, but only that fresh guts should not be admitted.

Dr. *Zangger.*—Gentlemen; if this is the case, if only those guts and hides which come from healthy animals may enter, then I beg that this may be mentioned distinctly in the proposition, otherwise others beside myself may misunderstand its purport. If the motion is thus corrected, I do not object to it.

Dr. *Rawitsch.*—The intestines of sick animals are never sold by us. No peasant would sell or even touch them; these, as well as the skin, he would certainly inter, because he cannot derive any profit from them.

The *Reporter* (to Vice-President).—I think we ought now to divide on the separate points, in order that a continual recurrence to subjects which have previously been decided may be avoided.

The *Vice-President.*—Gentlemen who are in favour that cattle hides, in accordance with the motion of the Committee, may enter, will rise. (The Assembly rises.)

Dr. *Rawitsch.*—I am in favour of "perfectly dry and hard hides of cattle."

The *Reporter.*—"Horn-points." (Adopted by acclamation.)

The *Reporter.*—"Dry bones." (Adopted by acclamation.) "Salted guts of cattle."

Dr. *Rawitsch.*—They never are salted when taken from animals which have been sick of Rinderpest.

Mr. *Seifmann.*—They are pathologically so altered that no one would use them. (A voice: "They may be omitted altogether.")

Dr. *Haubner.*—Gentlemen; I believe we must distinguish between the circumstances of the wholesale and retail trade. We shall, I believe, return to this subject when "wool" is submitted to us for consideration. I believe this distinction ought to be made with this produce and with guts. Guts are certainly articles of commerce. In Pesth exists an extensive "gut factory," from which are annually sent out thousands of cwts. If Rinderpest is prevalent anywhere, then guts from this factory must not be used as articles of commerce, although they are sold under the name of "salted and dried guts," because in that case guts are altogether prohibited as articles of commerce. You may exclude for similar reasons violin or bass strings, if you believe them capable of spreading the infection, because they are manufactured of guts.

Dr. *Hertwig.*—In confirmation of the statement just made permit me to mention one fact. Nine years ago, when Rinderpest was prevalent in several Austrian provinces, the proprietor of an extensive sausage factory in Berlin bought, in Austria, salted guts of cattle to the amount of fifty thalers. They arrived at the Austro-Prussian frontier as "salted guts of cattle." The custom-officials would not let them proceed farther; they telegraphed to Berlin asking for instructions, as in the previously read part of the Prussian regulations, concerning animal epidemics, no mention was made of guts. Neither the Ministry of Finance nor the Ministry of the Interior were able to tell what ought to be done. The subject was submitted for deliberation to the Veterinary College, and it advised the immediate admission of the guts. I was present when the barrels, wherein they were packed, were opened. The barrels were of considerable size, weighing about two hundred pounds. About half of this weight must however be ascribed to a very strongly concentrated salt solution; the guts themselves were clean and free from any pathological appearance. This circumstance induced us to believe that they could not have been taken from cattle which had been very severely sick. I suppose they were from healthy cattle. We admitted these guts without the use of any other precautionary measure, and no bad consequences resulted therefrom.

Dr. *Tscherning.*—I must remark that I consider the salted guts of cattle as dangerous; as very dangerous.

Mr. *Reynal.*—In deliberating upon a question of sanitary police, it must always be remembered that the subject is in close connexion with commerce and industry: from this may be deduced the rule not to promulgate measures of an administrative character, if experience has not demonstrated that they are indispensably necessary. Now let us investigate if typhus has ever been imported by means of skins, bristles, hair, bones, or dry horns. France and England, for many years past, have dealt extensively in these articles. The tanners in Paris receive dried hides direct from Russia, but typhus has never been developed by their means either in Paris or in the ports of the Baltic. This result is not surprising, because the most virulent and active contagion cannot be communicated by means of inoculation. Mr. Renault and himself had, with regard to this, acquired experiences which leave no room for doubt. He was quite convinced that dried hides and other dried animal produce were not productive of danger. He was opposed to all propositions which had a tendency to prevent, even in the slightest degree, free circulation in any country, even when epizootic diseases were prevalent. With regard to tallow, he was of the same opinion, because tallow, as it is used in commerce, is not sent in its raw state, but thoroughly melted; at least, it always arrives in this state in Paris. It is well understood that in the melted state it cannot produce any evil effects, it should therefore be exempt from all prohibitive measures, even if they exist only temporarily.

Dr. *Haubner.*—Gentlemen; in connexion with what has just been stated, I beg to offer a few remarks. I must again recur to what I said previously, that there is a vast difference between the wholesale trade and the common frontier intercourse. The produce which are articles of wholesale trade are perhaps weeks or months away from those places where epidemics are prevalent, and most of these articles—I will not say all—are perhaps never brought again into contact with animals capable of conveying infection. An article may be very inflammable, but something else is required to set it on fire. When the horn-points are brought to the turner they will not produce Rinderpest within his house, and into the country they never come. It is the same with wool; by means of railroads it is conveyed into the large factories, but this will not produce infection. The same may be said of dry skins; and in all cases where the articles have been removed for months from the infected places, infection is impossible, if they have been subjected to a thorough disinfecting process previously.

The *Reporter.*—I do not think there is any further objection to the admittance of dried guts of cattle. (Cries: "Divide.")

The *Vice-President.*—Gentlemen who are in favour that salted guts of cattle may be admitted, rise. (They rise. Cries: "Counter-vote.") Let us try the counter-vote. Whoever is opposed to the admission will rise. (Five members rise.)

The *Reporter.*—"Melted tallow in vessels." (Cries: "Divide; always divide.")

The *Vice-President.*—Those in favour of the motion will rise. (They rise). It is adopted by a large majority.

The *Reporter.*—"Sheep-wool in bags."

The *Vice-President.*—Those who are in favour of this will rise.

Dr. *Fuchs.*—I do not know the reasons which induced the Commission to propose that sheep-wool in bags may enter free. We have just been informed that the contagium of Rinderpest is of no great tenacity, and that the air will soon destroy it. But, if the wool is conveyed in bags, there would be a possibility that the contagium within them will longer retain its infecting power than if the wool were not sent in bags. Why wool, when not in bags, should be prohibited from entering free, is to me incomprehensible. I trust, therefore, that the Committee will state the causes which led them to make this proposal.

The *Reporter.*—We were of opinion that wool conveyed in this manner would not readily come into contact with cattle or other animals capable of infection; but wool sent without being packed in bags, and coming from infected places, or from sheep which formerly were diseased, may easier communicate the infection. We believed that by packing it in bags we might prevent the possibility of infection.

Dr. *Seifmann.*—As I had the honour of being a member of the Committee, I beg to state another reason which was discussed, why sheep-wool in bags should be treated differently from sheep-wool in other conditions. The sheep-wool in bags, comes generally from large estates. I do not think there is a country in which sheep are not washed previous to shearing; neither do I think that the sick are anywhere washed at the same time as the healthy, in order to obtain the wool at the expense of the health of the sheep; especially as Rinderpest is a disease by which the certain loss of an animal may be expected if it is washed with cold water during the time that it suffers from it. This wool, when washed and taken from healthy sheep, or from such as are not suffering from a contagious disease, may be admitted free. But the case is entirely different with wool from sheep suffering from itch or Rinderpest, and belonging to separate small proprietors. There, it may be supposed, that the poor proprietor, as he is to lose the sheep, will at least save the wool, therefore he shears the animal in order to obtain a trifle for its wool. This is one reason why sheep-wool in bags, and in large quantities, is treated so differently from wool in small quantities.

Dr. *Tscherning.*—I beg to announce my decided opposition to the conveyance of sheep-wool in bags, for reasons which are well known to the Assembly.

Dr. *Haubner.*—In Hamburg I advocated the free admittance of sheep-wool in bags, and I am still in favour of it, because wool is not conveyed in any other manner, with regard to the wholesale trade, than in bags. I have been told that sometimes it is brought from Russia, held together by iron hoops, just as cotton is packed. I cannot vouch for the truth of this statement. It generally passes in the wholesale trade packed in bags. Gentlemen, if you exclude wool entirely, and pass a resolution to this effect unanimously, it will nevertheless be brought to us—it will find an entrance. Several years ago, when the

Prussian frontier was barred, I was asked if wool was brought from Dresden into Prussia? I answered in the affirmative. I was then informed the nearest way was by Breslau and Warsaw; and if this had been impossible, we would have received it by way of Königsberg; and if this had been equally impossible, we would have received it viâ the Danube. Then, Gentlemen, close the whole of Europe to prevent wool from entering.

Dr. *Rueff.*—With regard to the article, "Free admittance of wool in bags," I must remark, from a practical point of view, that every fleece, after being removed from the sheep, must remain three or four days before it is packed, otherwise it would get heated, and the wool would deteriorate. Therefore, as the wool has, previous to its being packed, been exposed for some time to the influence of the air, the infecting substance has by that means been destroyed.

The *Vice-President.*—Is wool in bags to be admitted? Whoever is in favour of this will rise. (Large majority.)

The *Reporter.*—"Cow-hair and pigs' bristles."

The *Vice-President.*—Gentlemen in favour will signify their assent by rising. (The Assembly rises.)

The *Reporter.*—We now come to, secondly, "Entire horns and hoofs are to be treated with a solution of concentrated chloride of lime or common salt." We were induced to propose here a disinfectant to remove every cause of fear, because to the rims of the hoofs, or to the base of the horns, skinny or bloody parts may still adhere. As a means of disinfection we propose a concentrated solution of chloride of lime or common salt.

Dr. *Fuchs.*—If common salt is used as a means of disinfection, it appears to me especially fit to preserve the organic parts, and with them the contagium, which still adheres. I therefore propose that common salt be not employed for this purpose, but some other means of disinfection. Against the use of chloride of lime I do not object.

Dr. *Jessen.*—I quite agree with Professor Fuchs. I do not think a solution of common salt can be compared with chloride of lime, as the latter offers much greater security.

The *Reporter.*—The washing or cleansing of the horns and hoofs with a solution of common salt has been admitted into the Austrian regulations concerning epidemics, in consequence of repeated petitions from dealers in horns and hoofs. They state that the quality of the horns loses greatly by washing them with a solution of chloride of lime. From the chambers of commerce of Brody, Kronstadt and Hermannstadt, repeated memorials were drawn up, praying that another means of disinfection may be permitted; and, since 1853, I believe that in Austria the horns are never otherwise cleansed on the frontier, when Rinderpest is prevalent, than with a solution of common salt. Since that time I do not know of a single instance of a consignment of horns and hoofs having spread the Rinderpest.

Dr. *Rawitsch.*—I believe if we admit dried skins without disinfection, we do not require disinfection for horns and hoofs. We leave them therefore only "dry" when they are brought into commerce; the same remarks apply to them as to skins, they are in fact the same.

The *Vice-President.*—Whoever is in favour of disinfection exclusively with chloride of lime, will rise. (Only a few rise.)

Dr. *Fuchs.*—It has been stated that I submitted the motion to disinfect exclusively by means of chloride of lime; this is not the case. I merely stated that I considered common salt not sufficient, but that I should like to propose in its stead something just as light, potash, &c. If chloride of lime detracts from the quality—(A voice: "alkali is worse still.")

The *Reporter.*—Alkali is entirely inadmissible. I take the liberty to propose that those gentlemen who are in favour of the motion as stated previously, *i. e.* for the alternative "either with"—"or with"—will rise. (The majority rises.) This point, as worded by the Committee, is adopted. Now we come to the consideration of the 4th point:—"Melted tallow in skins ought to be disinfected in the manner that its covering is to be washed on the outside with a concentrated solution of chloride of lime, or common salt." Here in Austria, the skin in which tallow has come from the Danubian Principalities, has for a long time past been washed with a solution of common salt.

Dr. *Hertwig.*—Gentlemen; I believe many of you are not thoroughly acquainted with this subject. In the South of Russia there are enormous slaughterhouses, in each of which during the autumn 400, 500, or even more, animals are killed. The flesh is salted, pickled, and remains generally there until the cold weather opens up the roads, when the flesh is brought by means of sleighs to large towns. By this slaughtering large quantities of tallow are obtained. If the tallow is melted, it necessitates a conveyance in wooden vessels; and as they are not easily obtainable in those regions, the first stomach is used for that purpose. The stomach is first washed, then the tallow is melted and poured into these bags; later they are placed in great numbers on waggons, and thus transported. Now, it may reasonably be supposed that even if the tallow was obtained from animals which suffered from Rinderpest, the high degree of heat required for melting would certainly destroy the contagium. And if the skin of the stomach should still contain a contagium, the inherent degree of heat of the tallow, which is well known to be greater than that of boiling water, would surely destroy it. This tallow in the first stomach never comes from the nearest provinces of Austria or of Poland, which are situated towards Germany, but always either from the Danubian Principalities, Bessarabia, or the South of Russia; therefore, before it arrives on the German frontiers it has already passed over about 200 (German) miles. Even when it is conveyed very quickly—railroads, of course, are not taken into consideration in this calculation—it cannot arrive in less than three weeks at the German frontiers, and should, after being exposed to the influence of fire, a trace of contagium remain, this long period would have annihilated it. Nevertheless, the Committee, in order to quiet timorous minds, have proposed to wash the cover of the tallow externally. The Prussian regulations direct that it should either be washed or uncovered. By this means the conveyance becomes very difficult. Our intention is to free commerce from all difficulties; therefore have we limited the disinfection to simple washing, and I am convinced that tallow will never introduce Rinderpest into Germany or anywhere else.

Mr. *Reynal* remarked that tallow was never imported into France in this manner, and therefore any regulations with regard to that country were quite superfluous.

The *Vice-President.*—Does the Assembly agree to adopt the motion of the Committee? Those in favour of it will please to rise. (The majority rises.)

The *Reporter.*—To these three points which the Assembly has passed must be added : "All these raw articles, when they come from infected regions or places, are under all circumstances prohibited from entering, as a matter of course." This, owing to the state of the veterinary police of each country in Europe, is self-evident; as it is regulated in the manner that the export of animals and animal produce is prohibited during the prevalence of an epidemic. With regard to the fourth point of the motion, I think it concerns less international commerce than the local traffic, but we had nevertheless to embody it in words. The Committee propose the following : "Fresh bones, fresh hides and guts, raw tallow, raw flesh, raw sheep-skins, even when dry, are, during the prevalence of Rinderpest, when coming from infected regions and places, not to be admitted as articles of commerce."

Dr. *Hertwig.*—Pray, permit me—I forgot it previously—to add "unwashed wool" to the articles which ought to remain excluded.

Dr. *Halicki.*—Sheep in France are always by themselves, and are never brought into contact with cattle.

The *Reporter.*—This is not the case with us. This is a measure which does not in reality concern international commerce. It is not to be thought that raw flesh should form an article of international commerce. But as some States introduced prohibitory measures so soon as the Rinderpest was prevalent in a neighbouring country, whether the Rinderpest was at a distance of 30 to 40 miles from the frontier or close to the border, we thought it best to propose this motion.

The *Vice-President.*—If the Assembly agrees to the motion of the Committee in this respect, it will please to rise. (A large majority rise.)

The *Reporter.*—We have now finished the two parts of the first subject of the programme. It will perhaps seem strange that we have said nothing with regard to the traffic in animals at a time when Rinderpest is prevalent in a country. I can in this respect only repeat what I previously stated. We must suppose that a law exists everywhere, that during the prevalence of Rinderpest in any place the sale of cattle is prohibited, and that this measure is strictly enforced. The Governments of neighbouring countries must, of course, be at liberty in such cases to demand a certificate of health for animals intended for importation, or evidence that they are not brought from infected regions or places. We have therefore not introduced this point, particularly as we were unable to take into consideration what ought to be done regarding human beings coming from countries where Rinderpest is prevalent. If measures were nearly everywhere relinquished for the prevention of the importation of pest in human beings, cholera, &c., it would in my opinion be even less possible to maintain means for the same purpose with regard to Rinderpest. He who has once seen the traffic on the frontier, and knows something of the circumstances at the so-called "irruption stations," especially opposite Russia and the Danubian Principalities, will not further think of the possibility that the disinfection of the people who pass the frontier during the prevalence of Rinderpest could be effected. The Committee therefore offered no motion in this respect. (Dr. *Röll* takes the chair.)

The *President*.—We will now proceed to consider the second subject of the programme, regarding safe measures of cattle conveyance on railroads, and the method of disinfection which ought to be adopted in the conveyance of cattle. Professor Müller is reporter. (Cries: "An adjournment for half an hour.")

Dr. *Hertwig*.—I am in favour of an adjournment for a quarter of an hour, but before doing so I should like to read the programme on this subject again. One or other of us may, during the adjournment, confer with his friends upon various points.

The *President*.—Does the Professor mean the motion of the Committee with reference to the second subject of the programme?

Dr. *Hertwig*.—Yes.

The *President*.—Are gentlemen desirous that the motion of the Committee concerning the second subject of the programme be read again, and that afterwards the meeting be adjourned for a quarter of an hour? Gentlemen who desire this will please to rise. (They rise.) It is adopted. Professor Müller will speak.

The *Reporter* (Dr. *Müller*, Vienna).—I have the honour to introduce the second subject of our programme. It is: "Deliberation on the methods at present existing in various States for the disinfection of railway waggons which have been used for the conveyance of cattle, and, if possible, the determination of a uniform plan of cleansing, which shall satisfy the interest of the cattle trade, the demands of the veterinary police, and the railway management." I shall explain the subject shortly, although a more detailed investigation is necessary to understanding it thoroughly. I acquired a practical insight into the system of cleansing, not only now, but in 1859. There exists a disinfecting law in Austria which was not promulgated originally with reference to Rinderpest, but which was made in 1859, when it was discovered that horses suffering from glanders were conveyed in large numbers by rail. In 1860, when Rinderpest commenced to spread, the authorities discovered the necessity of introducing a system of disinfection to be employed in waggons used for transporting cattle suffering from Rinderpest, or suspected of being infected; and negotiations were carried on during two years with the boards of management of the different lines of railroad with regard to this subject. During these negotiations, I had an opportunity of submitting the experience I had acquired in the disinfection of waggons in 1859, to their consideration. In 1862 a law was passed, which originally had only a bearing on the cleansing of waggons wherein animals, either suffering from, or being suspected of Rinderpest, had been conveyed. But it appeared, as I had already ascertained in Prague in 1859, that such a separation of waggons could not very well be effected; but that, at times when Rinderpest had spread farther, all waggons must be cleansed, because it could only be discovered after the animals had left the waggons whether any, and which of them, were infected. This had become already apparent in Prague, in the great transport of horses. When 400 or 500 horses had been unloaded, they were examined, and when any were found suffering from itch, or suspicious discharge from the nose, or presenting any diseased appearance, it was impossible to ascertain the waggon in which these animals had been conveyed. The outbreak of Rinderpest proved likewise the necessity of promulgating a law—which the ministry decreed—that during the prevalence of cattle epidemics all waggons wherein cattle had been conveyed must be cleansed. And this law is still in force. Later, it was made more severe in its operations, but this concerned only a few minor points. In all essential points it remained the same as when it was first promulgated in October, 1862. It is printed in a collection of laws published by Mr. Hamerle, Secretary to the Provincial Government, and can be easily obtained. I shall communicate it to you, with the supplementary alterations, and especially the experiences I gained in 1859; likewise those which I acquired in the course of this summer, in respect to the practical realisation of a method of disinfection which is employed on four lines of railroad in Vienna. The subject is of great importance, because the present mode of conveying cattle differs entirely from that formerly existing. The circumstances with regard to the transport system are likewise entirely altered. These cannot be relinquished; commerce is nothing but an exchange of commodities. We in the East supply the produce of nature; the West furnishes us with manufactured articles. This renders a continual intercourse necessary. The rapid development of factories likewise necessitates a great demand for meat in large towns, and Paris, London, and other cities, are supplied with animals from regions which formerly were scarcely thought of. All this renders greater attention to the means of transport necessary. I will therefore now read those motions to you on which the Committee has agreed. I must of course suppose that, after the law, which exists only in Switzerland and Austria, has been read to you, it will be known by every member of the Assembly. We have made this law the basis of our motions. In Bavaria, Baden, &c., there are general directions concerning the cleansing of waggons, without describing in detail the manner of disinfection. The following are the motions of the Committee:—

"An essential cause of the spreading of animal epidemics consists in the transmission of the contagium to distant regions, through the means of conveyance employed, namely, railroad waggons and ships; it is therefore necessary to prevent such transmission in the following manner:

"1. All waggons and landing places used for the conveyance of cattle must, after each time they have been thus employed, be thoroughly cleansed.

"2. Articles of transport which have been used by animals suffering from a contagious disease must be disinfected.

"3. As means of disinfection we recommend the cleansing with boiling water and afterwards the careful washing with a hot solution of alkali; a mode of procedure which in Austria and Switzerland has been introduced by law. The washing with the alkaline solution may immediately follow the cleansing with boiling water. But the ships and waggons shall only be used again for conveyance when they are perfectly dry and have been aired. (Professor Perosino considers a solution of sulphate of iron worthy of recommendation for the destruction of ammoniacal exhalations.) A solution of sulphate of iron is often used to free privies from noxious gases, and to purify the air; and the destruction of the ammoniacal exhalations by such means in waggons may therefore be possible; but its use will still necessitate the washing and disinfecting of the waggons.

"4. The disinfection of railway waggons and ships renders the supervision of a veterinary surgeon necessary."

We were compelled to couple ships with railway waggons, because they form an integral part of the means of conveyance, and we can only state the points in a general manner. These are the points on which the Committee are perfectly agreed.

The *President.*—We have just received a communication from the Vienna Society for the Protection of Animals, accompanied by the following:—(*a*). 'Hydrophobia,' by A. Khuen. (*b*). 'The Dog Question, and its solution by means of a rational regulation with regard to dogs,' by Dr. A. Jurnitschek. (*c*). 'Memorial of the "Central Society for the Protection of Animals,"' presented to the Landtag, and a Lecture delivered by J. Kugler on 'Hydrophobia,' in manuscript. The Society likewise begs that these pamphlets, &c., and the keeping of dogs, might be made subjects for the deliberation of the Congress. I believe I could not do better than give all these to the Committee which has to deliberate on the subject preliminarily. According to the resolution previously adopted, I adjourn the meeting for a quarter of an hour. (On resuming):

The *Reporter* (Dr. *Müller*, Vienna).—In May 1859, the Directors of the Southern State Railway enquired of the Committee of the Veterinary Institute, how a railway waggon, which had been used to convey a horse affected with glanders, could be cleansed. At that time there existed no order in this respect. The answer was, that a waggon ought to be considered as a temporary stable, and the regulations concerning the cleansing of stables wherein horses with contagious diseases were kept ought to be enforced upon waggons. A few days later another question arose. Amongst a large consignment of horses some suspicious ones had been observed. In consequence, on the 15th of May, I was sent to Prague, to institute preparations with regard to the transport of horses sent by the State, and with regard to the cleansing of railway waggons. My mission had become more important—thousands and thousands of horses arrived at that time by rail in Prague. They came from Galicia, Hungary, Moravia, and Bohemia; and the number of horses which, during my stay, were conveyed by rail, amounted to at least between 30,000 and 40,000. The trains which arrived consisted each of fifty or sixty waggons, and the horses had to be unloaded at once, because the trains followed each other very quickly, and the waggons, as soon as they were empty, were sent in every direction, as the railway station in Prague was too small to admit of their remaining. At that time I was on the staff of an Austrian general, with whom I examined these animals and found now and then one which was mangy—and how could it be otherwise among thousands of horses?—and some with a rather suspicious discharge from the nose, so that I considered it my duty to propose the cleansing of the waggons. For this purpose I put myself in communication with Mr. Benda, the chief of the board of management of the railway company, who is a very intelligent man, and who made some really practical suggestions. It was remarkably easy to ascertain which waggons had arrived, because their numbers were written down, but to ascertain which waggon had brought a suspicious horse we found impossible. Therefore, I proposed to have the entire train cleansed if a suspected animal had been carried in it. This has been done. Orders were telegraphed to all stations to which the waggons had been sent. In Prague we seldom found them, because the trains could not remain there. This is likewise the case with cattle trains. As soon as the train arrives it is unloaded, and must leave the station.

I have been informed by the chief manager of the State railways that to cleanse a waggon is a very simple affair. All that is required is hot water and alkali; soda is easily procured, and the engine supplies hot water. But the matter assumes a different aspect when sixty or eighty waggons are to be cleansed at once. Within half a day, or a day at most, it must be done, and at present it is actually done in Florisdorf, where 400 or 500 waggons are cleansed within twenty-four or thirty-six hours. Already in 1859 the necessity became apparent of using hot water for cleansing purposes, which, as is the case at present, is heated in different ways. To cleanse the waggons by means of hot steam, as has been proposed, is impossible, because the principal thing to be cleared away is the dung of the animals which has dried on the flooring of the waggon, and this cannot be done by steam. Ventilation is unnecessary, because when the waggons are in movement they are sufficiently ventilated. The principal consideration is the cleansing of the floors of the waggons. In 1860, the Rinderpest spread in Austria. In Vienna, oxen which came from a healthy part of Hungary, were bought for the shambles, and arrived in perfect health. They were exported to Moravia, and there the Rinderpest appeared in several farm-yards where these oxen had been stalled. The Government of Moravia then proposed that, as it ought to be assumed these oxen had fallen sick in the waggons, these waggons should be cleansed, to prevent the spread of Rinderpest. This proposition of the Moravian Government was submitted to the opinion of the Imperial Veterinary College; there it was deliberated upon, and within eighteen months a law was passed, which was published by the Ministry of State in October, 1862, as a guide for the disinfection of railway waggons. This law was originally promulgated with reference to the transport of horned cattle, at a time when contagious cattle diseases were prevalent, and more particularly with regard to those waggons wherein suspected animals which had been previously in contact with those infected, or animals which were suffering from a contagious disease, had been transported. The law itself is divided into two parts. The first part treats on the transport of cattle, the second on the cleansing of the waggons. I do not know if gentlemen desire to have the whole law read, or if they will be satisfied if I confine myself to the directions concerning the cleaning of the waggons, which at present interest us most. (Cries of "The latter." Reads.)

Regulations concerning the Cleaning of Waggons used for the transport of Cattle.

1. All waggons used for transporting horned cattle are, as soon as they have been unloaded at the stations, to be cleaned at once by the labourers of the railway, and the dung and other unclean matters are to be carefully removed by means of stable-brooms.

2. Those waggons which are known to have contained animals suspected of or suffering from contagious diseases, must as soon as they are empty be cleaned thus:—All stands within the waggon, and the flooring, as well as all other articles which have been brought in contact with the animals, especially the fodder-boxes, are to be washed with boiling water, and afterwards, when they have been dried in the open air, they are to be washed again and rubbed with boiling alkali. The supervision of the execution of this cleansing measure is left to the Government agents.

3. Waggons in which animals suffering from contagious diseases have been carried must not be used for any purpose whatever until they are cleansed.

4. If, amongst cattle transported by rail, after they have left the railway, but within the period of incubation, a contagious disease should appear, the Government agents have to order the cleansing of the waggons, if they can be ascertained, and to convince themselves, as far as possible, that the order has been executed.

5. If suspected animals from an infected place are removed by rail, to be killed, by order of the Commissioners, the expenses of cleansing the infected waggons, which are to be reduced in amount as much as possible, will fall on the proprietor of the cattle, or under certain circumstances on the Government, but in all other cases, on the railway management. After the waggons have been ventilated, cleansed, and dried, they may be used again for the transport of cattle.

This is the law which was promulgated on the 9th of October, 1862, by the Austrian Ministry of State in concert with the Ministry of Commerce. But this law was only in force with regard to those waggons which were used to transport infected or suspected animals, or in which sick animals had been found. It soon, however, became apparent that the law was incomplete, as Rinderpest commenced to spread more and more. Dutch cattle were conveyed by the State railway from Dresden viâ Bodenbach to Lower Austria. They had, to all appearance, entered the waggons in perfect health, but within three days after they were disembarked, Rinderpest appeared amongst them. Therefore, it was considered probable that the cattle had been infected whilst being transported in the waggons of the State railway. In consequence, the Ministry of Commerce issued, on the 6th of December, 1862, a supplementary order, regarding the transport of horned cattle by rail, and the cleansing of the waggons used for that purpose, at times when contagious diseases prevailed. This order runs thus :—

In consequence of the prevalence and increasing extension of Rinderpest in several parts of the monarchy, the Ministry of State and the Ministry of Commerce and Agriculture have been induced to issue the following directions, supplementary to the law previously promulgated, regarding the transport of cattle by rail, and the cleansing of the waggons used for that purpose.

In order that the directions, given in § 44 of the Regulations regarding Epidemics of December 4, 1859, in reference to the supervision of cattle at times when contagious diseases are prevalent, may be carefully executed, it is herewith ordered particularly regarding railroads, that at all railway stations which will be decided on and named as soon as Rinderpest appears, and where loading and unloading of horned cattle is permitted for transport by rail, that a Cattle Inspection Commission, according to § 44 of the Regulations regarding Epidemics, be present, to consist of a political commissary, and a veterinary surgeon well acquainted with the symptoms of Rinderpest—or if such veterinarian cannot be procured, a medical man or surgeon. This Commission, besides the duties imposed on it in § 44 previously mentioned, is likewise especially obliged to give directions regarding the roads the droves unloaded at the railway stations are to travel by, to acquaint the civil authorities of the place as to their destination, and their departure, and, according to their discretion, to attach to the droves a responsible guide for supervision.

2. The contents of § 5 of the law on transport of cattle on railroads are to be altered, in so far that cattle for breeding, milk-cattle, draught-cattle, and those for fattening, must, at the time Rinderpest is prevalent, not be transported at all by rail in infected districts, and, in healthy districts, the permission of the civil magistrate must be asked in each case when the transport of cattle by rail is intended. In the latter case, the civil magistrate who gives the permission has to inform the civil magistrate of the district to which the cattle are being conveyed of the fact of their leaving. These cattle must, under no circumstances, be conveyed in waggons wherein cattle for killing are usually sent, but separate means of transport are to be provided for this purpose. Likewise, these cattle must never be sent with trains by which cattle for killing are being conveyed.

3. The directions contained in § 6 about the transport, and in § 1 and § 2 of the law about the cleansing of waggons used for the conveyance of cattle by railroad, that the cleansing is to be limited to those waggons wherein infected or suspected animals had been transported, are to be extended, during the time the Rinderpest is prevalent, to all waggons used for the purpose of cattle

conveyance. The management of the railroad has to cause this cleansing to be done in strict conformity with the directions already existing, and those which will be found below; and they are empowered to charge a fixed price, which must be as small as possible, and must be admitted into the tariff, to the proprietor of the cattle.

4. The directions about the cleansing of waggons used for cattle conveyance by rail, contained in § 1 and § 2, are thus altered and enlarged:—The dung, after being removed from the waggon, in order to prevent the Rinderpest being extended by its means, is to be destroyed at once, and must not be used for any purpose whatsoever. The directions given with regard to the purification of the waggons are likewise to be followed in cleansing all apppliances used for unloading and loading cattle, viz., steps, &c., and to all articles used for the cleansing of the waggons and implements, viz., shovels, brooms, &c. The officials of the railroad connected with the loading and unloading of cattle, and cleansing of waggons, implements, or other articles, have carefully to purify themselves, in accordance with the directions given in § 32 of the Rules relating to Epidemics, of December 6th, 1859, before they can attend to any other duties connected with the transport of cattle.

5. The supervision of the transport of cattle by railroad, and the cleansing of the waggons, implements, and articles requisite for this purpose, in accordance with the directions previously issued and now enlarged, is left to the Cattle Inspection Commission, which for this purpose, as stated before, is present at every railway-station where the loading and unloading of cattle is permitted.

6. The railway management is held responsible for any damage arising from the neglect or disobedience of these directions.

To this law the Austrian Provincial Government added a supplement which bears more on details. There is more especially one point in § 2, wherein it is stated:—

This purification has to commence immediately after the arrival of such trains with horned cattle, and is to be finished in two days, in the following manner:—On the first day, the purification with boiling water, and, on the second day, with boiling alkali, is to be carefully done; then, on the third day, the waggons are again fit for use; but, during this period, the waggons must remain exposed in the open air.

The other points refer exclusively to Austrian interests. These are the directions which are in force to this day, and which I had an opportunity of personally seeing carried out during June and July last. How these directions are carried out, I shall state to you as concisely as possible, because the subject is of great importance, and our resolutions are based on it. I happened to be in Florisdorf, near Vienna. During

Saturday and Sunday, late at night there generally arrive 2000, 2500, or 3000 head of cattle; the number varies according to the requirements of commerce. The animals come from Lemberg, Grosswardein, Arad, Temeswar, and Basiasch. One part is Polish or Podolian, another Hungarian; the numbers of either vary, sometimes there are more of one and sometimes of the other. At present in my country cattle are generally transported by rail, but when no epidemics prevail, conveyance on foot is permitted, although at present it is prohibited. The cattle-dealers themselves, as by questions and from my own knowledge of the subject I became convinced, prefer sending their cattle by rail, and only under peculiar circumstances do they forward them on foot. Formerly it was different. In Hungary, especially in the neighbourhood of Gyônyös, Pesth, and Waitzen, there were immense meadows where sometimes 15,000 to 20,000 head of cattle were to be seen. Railroads have changed all this. Other circumstances have likewise exerted their influence. The former extensive meadows are now transformed into fields, and therefore there exist no longer cultivated grounds for pasturing large herds. I have seen, between Keskemet and Halas, large tracts which, formerly meadows, are now highly cultivated fields. In every waggon which arrives there are six, eight, ten, or eleven head of cattle. When six to ten oxen are in a waggon two or three days—they are generally conveyed without stoppage, to avoid feeding them—the dung accumulates to a great height. In winter, especially when it freezes, large quantities are found in every waggon. The number of waggons on the Northern Railway employed in the transport of cattle is between three and six hundred. As soon as the waggons are empty, they are removed, and cleared at once of the dung, and disinfection, according to law, is carried out.

I have found that on different lines the process of disinfection differs slightly, although essentially it is the same. On the northern lines the necessary quantity of hot water for cleansing purposes could not be obtained from the engines. They have immense vats into which the water of the Danube—which is at their disposal in any quantity—is conducted by means of pipes. The water is then heated by steam from the engine-factories. The steam, by entering the vat from below, heats the water immediately; generally two or three vats are filled with water, and one with alkali. The first process is to pour hot water into the waggon to soften the dung. In winter this is necessary on account of the frost, in summer on account of its drying up; the dung in the waggons adheres very firmly. When the waggons have been wetted, they stand thus for some time; afterwards the railway officials, two or three men to each waggon, commence to cleanse them thoroughly. The number of men employed at Florisdorf in cleansing waggons is from forty to fifty. The cleansing commences on Sunday, and is continued through the night and on Monday; but by Tuesday morning the waggons must all be clean, as the traffic on the line does not permit them to remain idle any longer. When the waggons have been thoroughly washed with boiling water, alkali is poured in. This cleansing with alkali commences after the waggons have stood for some hours, have been ventilated, and are beginning to dry. When they have been washed with alkali they are removed to an open place. They are open, therefore the air ventilates them thoroughly; in summer time the drying, the complete drying, takes about five or six hours. Ventilation is on their return journey so thoroughly accomplished that nothing deleterious remains in the waggon. The purification is so thorough that a newly scrubbed room could not be cleaner. On such lines as that from Raab, where the transport is at times very great and at other times very trifling, the waggons, after having been purified, are often employed for entirely different purposes than that of conveying cattle; they are used to carry loads of corn, which by way of Bavaria goes into Switzerland, or to transport loads of wool. On this line sometimes two or three waggons are used to convey oxen, at other times fifty or sixty. On the Raab railways the water is heated by a different process; there are extensive mashing-works, the hot water from which is conducted into a pond, which is so hot that it is generally used as a washing-pond. On the Southern line of railroad they have large copper boilers, under which a fire is made. There likewise the number of waggons to be cleansed varies greatly, according to the state of traffic. Sometimes from the neighbourhood of Oldenburg or Pagra from 200 to 300 oxen and buffaloes are conveyed;

but at other times the number falls much lower. The number of waggons required, therefore, varies, according to the state of the cattle trade. It is the same with the Western line. Generally each line of railroad has one, two, and at the most three stations where waggons are cleansed. At some of the smaller stations it is very difficult to cleanse them, as the necessary preparations for the purpose cannot be effected, or more room is wanted. The purification of the waggons is of great importance. The traffic in cattle has assumed vast dimensions; now-a-days sheep and cattle, especially Hungarian, are sent to Paris direct, with a contract for the period of delivery, which must be strictly kept. They are sent and must arrive in Paris by a certain time. Therefore it is of international importance that in all States whence cattle are transported a uniform system of purification ought to be adopted, if absolute security is to be guaranteed. And this purification ought not to be limited to waggons wherein really sick or suspected animals have been transported, because to identify these waggons is very difficult, and also because sick animals are generally discovered too late. It ought to extend to all cattle transport; but a real disinfection becomes only necessary, either—as has been proposed by us—when epidemics are spreading far and near, or when really sick animals have been transported, and the waggon which they occupied is known. We have given these propositions a general character, and have not limited them to specific diseases, because general measures furnish directions for guidance in case of each separate disease, and, if required, they can be easily modified. I will state shortly to you, Gentlemen, what objections the directors of railroads have raised; this is likewise of importance. The objections are not very essential, at least not of any great importance. It certainly is troublesome to have the waggons disinfected, especially with alkali. But all managements have acknowledged the advantage of the purification system, so that with reference to this point no objection has been raised. All without exception have acknowledged that cleansing, even in times when there is no danger, appears necessary; and that, as has been the case formerly—of which I have been informed, and which I saw partly myself—the dung in waggons should not be allowed to accumulate to the height of six inches and more, and then only be removed very superficially. A purification is necessary under all circumstances, whether disease may be prevalent or not. The objections which have been raised by the railways refer to the order that the cleansing must be done within two days, and that the waggons can be used again only on the third day. This appears to the managers of the railroads too long a period. They cannot spare the waggons three days, they require them the following day. When the waggons stand empty for three days, and are sent back perhaps on a Thursday, they cannot reach distant stations in time to be loaded and returned before the end of the week. The railways would then require double the usual number of waggons. I believe this is an important point. The Committee has agreed that the washing with hot water shall be succeeded by that with alkali, so that the entire cleansing process may be finished in one day, as is generally done. A second objection raised by railway managers to this frequent cleansing was, that the wooden planks in the waggons became rotten. The hot water enters into the grooves, and in spite of the waggons being placed in the open air, the wood never gets thoroughly dry. I have made inquiries on each line if they could not propose something to prevent this, but could get no satisfactory answer. Professor Seifmann, who was present with our Commission, proposed to furnish the waggons with iron floors. But many objections were raised against the proposal. Firstly, cast iron or forged iron—iron plate—might be used for this purpose. Cast iron, however, would most likely burst, forged iron would greatly raise the expense, and, after all, bars would be required, which enter upwards into the wood of the waggon. Secondly, the whole waggon could be constructed of iron, but this would occasion great expense. The railway company undertakes the cleansing, and is responsible for it, and, as I said before, I have convinced myself that anything could afterwards be sent by these purified waggons. They are so clean, one could eat off them. They are thoroughly washed, at least those which I saw were so, and I have seen about 100 lately. It does not appear advisable to employ other disinfectants than alkali. As one of the gentlemen—Dr. von Koch—proposed, limewater may be used to whitewash the waggons; but then the floors would still require to be washed, and this is the principal thing to be done. The expenses of whitewashing would likewise be greater than at present, because the heating of the water costs next to nothing. The alkali mixture—carbonate of soda, which is employed, is remarkably cheap, and the companies keep it always in store in hundredweights—may be prepared almost in an instant. Some advise the use of tar, but then the flooring must still be cleansed with hot water. Iron plates are not bad for the purpose, but the animals would stand on them more insecurely than at present, unless they were very deeply indented and grooved. Iron plates possess likewise the disadvantage that they are too cold in winter, and if animals coming from Lemberg remained on them three days, their feet might be frost-bitten. These are the communications I had to make to the Assembly with regard to this question. We therefore, with reference to the purification system adopted in Austria and Switzerland, make several propositions. One of the principal causes of the spread of cattle diseases is the transfer of the contagium to distant regions by the means employed for the transport of cattle, for example, by railway waggons and ships; therefore we consider it necessary to prevent this transfer. We thought it advisable to lay down two points, namely, the simple cleansing of the waggons, and their disinfection; the cleansing has to be done under all circumstances, whether epidemics prevail or not, but the disinfection is only necessary when epidemics are prevalent, or when animals suspected of disease have been conveyed. We therefore agreed to give the first point a general signification:—

1. "That the waggons and trucks used for the conveyance of cattle must after each time they have been used be thoroughly cleansed." It is not necessary to enter into details on this point. It depends more or less on each railway station; in each country it differs according to the rules which emanate from the separate Governments. As second point is proposed:

2. "Means and articles of transport which have been employed for animals suffering from a contagious disease"—(we have used a general term, because the cleaning system for all contagious diseases is the same)—"must be disinfected." We used the word "disinfected" in accordance with a suggestion

from Professor Rawitsch. "The disinfection is likewise required of all means of transport after each time they have been used, at such times and in such regions where a virulent contagious disease is prevalent." It must again be left to the consideration of the separate Governments whether they think the manner of the extension of a disease of such importance that they should introduce a measure touching all waggons. I believe this is a measure which properly belongs to the executive of each country, and which cannot be determined from a general point of view. We have fully considered and determined on the meaning of every word which we have employed. We have not used the expression "country," but "district," because Russia, for example, is a country which, when Asiatic Russia is added, is six times as large as all the other countries of Europe put together; and such a measure, when generally recommended for adoption, is not intended to convey the meaning that all waggons in Russia are to be cleansed at once. We selected likewise the phrase "at times when a virulent contagious disease is prevalent," after great consideration, and intend to retain it.

3. "As disinfectants we recommend cleansing with boiling water, and afterwards careful washing with a hot alkali mixture, a proceeding which in Austria and Switzerland has been introduced by law;" and to this we have added, "the washing with alkali may succeed immediately the use of the boiling water." According to the present state of chemistry, we can only consider alkalies as the best disinfectants. Hot-water steam is not sufficient, because it could not purify the flooring, neither would chloride of lime clean it; it would be necessary to use lime-water in very considerable quantities, and this would be connected with so much that is irksome and disagreeable, that it would never be generally adopted for this purpose. A solution of chloride of lime would necessitate considerable expense, and the rotting of the woodwork and other evils would follow as surely as if hot water and alkali were used. We state, further, "that waggons and ships shall only be employed again for conveyance when they have been thoroughly aired and dried." The expressions "aired" and "dried" we have selected to explain that the waggons must remain open. A closed waggon when damp produces a musty air, and this might generate diseases of various

kinds. Professor Perosine ascribes some value to sulfas ferri; he says—as has, in a previous lecture, been intimated by Professor Reynal—that the air, in consequence of many animals being pressed together in a narrow space, becomes so contaminated that it alone suffices to produce disease. Sulfas ferri is indeed a remedy often employed in privies during outbreaks of cholera, and on many other occasions. If a Government should adopt the plan of purifying the air in waggons by means of sulfas ferri, it would only fortify and improve the means already mentioned for disinfecting purposes. But we have added, that disinfection by means of washing with alkali is not to cease, but is to be continued under all circumstances.

Point 4 likewise appeared to us of great importance, because every cleaning process must be watched; else it would share the fate of many others, namely, for some time it would be done; and gradually it would fall off till it ceased altogether. We have thought it to the purpose to consider this supervision as part of the duties of the veterinarian, because he is the most proper person to decide if a waggon is sufficiently clean to be used with any degree of security for the further conveyance of cattle. This, in short, is the explanation I had to give in regard to the second point of our programme.

Dr. *Gerlach.*—Gentlemen; such a clear definition and explanation of the subject has been given, that a very few words require to be added. Especially it ought to be remarked that the practical part of the question has been kept in view, and that great regard has been paid to that which may really be accomplished and at the same time guarantee the greatest amount of security. But in the simplification, in the practical execution, I intend to go a step beyond the Committee. That which is employed must offer of course as much protection as possible; but it must, above all, be effectual, and easily accomplished. It must not produce much work, must be incorporated with the daily course of events, and must become a permanent part of every day's work, to offer some amount of security. The general proceedings must, at the same time, prove effective, because—as was very pointedly remarked just now—it might be impossible to discover the waggon wherein sick animals had been conveyed, or the disease may appear later when the waggons have been sent elsewhere, therefore permanent means should be employed which offer general protection. To these certain disinfectants no chemical substances can be considered as belonging, and engineers, railway officials, and managers, with whom I have conversed on the subject, were decidedly opposed to the use of chemicals; with the exception of those particular cases which have been mentioned, where disinfection for specific diseases is required to destroy contagium, I have said I should like to go even a step farther than the Committee. I should like to see a general measure introduced, by means of which a deeper infection of the waggons may be prevented, and which, I believe, could be obtained by painting the waggons with oil; if I am not mistaken this has been already done to a considerable extent, but it fell into disuse and was not repeated at the right time. The wood saturated with oil, the holes painted with oil and the tenons rubbed with oil, will prevent the absorption of the volatile parts of animal excrements, impregnated with the contagium, into the interior; it will remain on the surface or outside of these parts, and it could then be easily destroyed. The use of oil I consider much needed in the case of all waggons used for the conveyance of cattle, and cleaning as soon as the disinfecting process is finished, which of course I must leave to the management of the various railways. By such coating of oil, which is kept in good repair, I believe only a warmth of 40° to 50° R. is necessary, and hot water, or hot-water steam, would be alone required, without the use of the alkali mixture, which would destroy the coating of oil. The mechanical part of the cleaning cannot be entirely effected by means of warm water and heat, or hot-water steam, as was rightly remarked by the last speaker. The mechanical cleaning must come first; the dung, and everything else which sticks to the flooring, must be removed. Then follows the use of hot water and water steam, where whole rows of waggons are to be cleaned, and everything has to be done quickly where large transports are sent. It must be done quickly, as I said, and I believe it might be done even quicker if moveable boilers were used at railway stations, and leather pipes fastened to them on the place where the waggons are to be cleaned with hot water and steam. I have spoken about this subject with engineers and they assured me that it could be accomplished, that it was practicable on a large scale, and that it would greatly simplify the whole proceedings. At smaller stations it would be impossible to have these moveable boilers; then boiling water must be obtained; this will certainly lose something of its high temperature in transmission to the waggons, but the water must be sufficiently hot for the purpose. Thus, by the use of the most simple means, we could keep the waggons clean and disinfected, and have no apprehension that diseases might be spread. All infecting substances we know are safely annihilated by a heat of 50° R. and upwards, with the exception perhaps of the contagium of anthrax. But we must not pay any attention to this: cattle suffering from anthrax are not being conveyed; and even if this disease should make its appearance it would be the exception, and would be recognised at once. Wherever there is a specific disease, then a distinct means of disinfection must be employed, especially, as has been proposed, when this is to be done under supervision of a veterinary surgeon. We may therefore rest satisfied with pointing out the mode of procedure and the use of the means in general.

Dr. *Tscherning.*—I should like to ask why steamboats have not been included in the list of conveyances.

Dr. *Gerlach.*—Ships in general; sailing as well as steamboats.

Dr. *Tscherning.*—Are they included? then they ought to have been named, because it is of great importance that the—

The *President.*—They are; ships in general.

Dr. *Tscherning.*—I am perfectly satisfied, if I am informed that steamboats are likewise to be cleaned.

Dr. *Zangger.*—Gentlemen; it deserves attention, when we, with regard to this subject, endeavour to obtain the desired end, that we do so with the least amount of interruption of railway traffic. But as soon as we interrupt that traffic to any extent, the prosecution of the proposed plans becomes impracticable; therefore the proposal of Director Gerlach, to simplify the means of disinfection, deserves grave deliberation. With regard to this, I have acquired a little experience, which I consider right to communicate to you. The central Government of Switzerland has been induced—in consequence of our resolutions in Hamburg—to promulgate a law for the control of the cattle traffic on railways, perhaps the first practical measure which has arisen out of the deliberations of the first Congress. I was commissioned to elaborate this law project, and to state the means by which infected railway waggons may be disinfected. I have found that the means employed for disinfecting stables are too complicated; and, after considering the subject, the thought struck me whether it might not be possible to use the hot steam or hot water which is kept in reserve in the tenders of locomotives as a disinfectant, to throw into the waggons, etc. At my request, the Government of Switzerland drew up a series of questions bearing on this subject, and these were sent to diplomatic representatives of Switzerland abroad, with an order to collect together all the experience that had been acquired elsewhere on this subject. Amongst the questions was this one: What says experience about the use of hot-water steam, or hot water, for disinfecting waggons? From the investigations made, it appeared that this question had been utterly neglected. From England, France, Italy, and most of the German States, came the answer, that, with regard to this question, nothing had yet been done, and no experience acquired. Dog-vans had been occasionally partially cleaned by means of steam, but with regard to disinfection no directions existed, except that limited districts occasionally issued special directions of a temporary character. Therefore nothing remained but to make use of the experience acquired by Austria, and some time previously I had an opportunity of observing the working of the Austrian directions. I proceeded to Florisdorf, where I became convinced of the practicability of the measures, and likewise that their introduction would be easy wherever the traffic was not very great. Gentlemen, there are two circumstances to consider. When the traffic is not great, and only single waggons with cattle arrive, then the water in the tender is generally sufficient for all purifying purposes; to procure an alkaline mixture, if it should be required, would also not be very difficult. But where cattle are transported on a large scale, where hundreds of waggons laden with animals pass in a day, then would it be necessary to employ more extensive agencies for cleaning the waggons. We proposed an uniform system of cleaning, such as is employed in Austria, namely the use of hot water and alkali. I believe a double washing is, generally speaking, necessary. It is next to impossible to examine each waggon, to see how it has been cleaned. There are careful and careless workmen. When the waggons are only once washed, parts will remain dry, and quantities of dung will not be softened and removed. A coating of oil, or saturation with oil, or varnishing the flooring with oil, will not, I fear, be sufficient. (*Gerlach* dissents.) The deposits of dung would in a short time dissolve the coating of oil, and after a few journeys there would not remain a trace of oil on the flooring of the waggons; I also do not believe that the directors of railways would so quickly order the waggons to be cleaned and the coating of oil to be renewed.

Professor *Jessen.*—I take the liberty to ask, why we do not employ chloride of lime in place of alkali, as by doing so a double purpose would be accomplished? especially when we consider that, as regards Rinderpest, there is in the air of the waggon an essential substance, which is instantly destroyed by adding hot water to the chloride of lime. But this substance cannot be destroyed by means of ashes. It cannot be destroyed, when, as Professor Müller stated, the waggons stand two or three days empty. It is well known that a careful washing with chloride of lime, especially of the inoculation spots, destroys the contagium so completely that even those animals which were inoculated could not be infected again.

Director *Zangger.*—Gentlemen; we objected to the use of chloride of lime on account of its disagreeable smell, and because the cattle waggons, as Professor Müller informed us, are often employed for the conveyance of other articles. An economical railway management, where the transport is not confined to cattle, would employ disinfected waggons for the conveyance of other articles; then it may happen that the acceptance of the articles would be refused, on account of the smell of chloride of lime. It ought to be also considered, that a stable can scarcely be aired so thoroughly as a railway waggon. When the doors on both sides of an empty waggon are open a little way, and the waggon is attached to a locomotive for a short distance, it becomes thoroughly aired. I believe it would throw great difficulties in the way of the management of railways were we to recommend the use of chloride of lime, or other strong-smelling substances.

Professor *Jessen.*—I beg to observe that if chloride of lime cannot be employed for technical reasons, of which I am unable to judge, it appears to me that the proposal of Professor Gerlach would be the best, because, by means of the injection of hot water into the waggons, the air gets warmed, and all poisonous substances are thereby destroyed.

Director *Zangger.*—I am still in favour of the proposal of the Committee, to disinfect, first by means of washing with boiling water and then with a hot composition of alkali; but in the event of the motion of Professor Gerlach passing, namely, to use hot water only, I should suggest repeated washings with hot water.

Professor *Hertwig.*—Gentlemen; I beg leave to make a few remarks on two subjects. First, on that under discussion, and about which I originated a controversy two years ago in Hamburg, namely, the employment of boiling-hot water-steam. This is easily done, and but five or six minutes are required to fill the interior of a waggon with hot steam to such an extent that all seams and crannies, which are scarcely to be got at by means of washing, are penetrated. In the Stettin railway station in Berlin, I had some experiments made with hot steam two years ago. We were at that time, owing to a prevalence of aphthous disease and to an outbreak of foot-and-mouth disease, in a position to make suggestions and experiments. The waggons were completely disinfected in six minutes by the means employed. There is a simple preparation required, namely, a bent pipe, of about the thickness of a man's arm, which is fastened to the boiler of the locomotive; when this is done, the steam is permitted to enter the waggon, and then the doors are closed. The waggon may be used in a short time afterwards. But with this process of disinfecting must be combined that which Professor Müller advocated so strongly, namely, a thorough cleaning of the floors. The steam cannot remove the dried-up dung from the floor; there a separate cleaning is required, which can be accomplished by the repeated pouring on to it of boiling water, and when the dung has become softened it must be scraped off, and the floor again washed. This is one subject. With regard to the other, I beg leave to ask one question,—it is in reference to the urine which is secreted by animals during a transport of fifty or sixty miles in twenty-four hours. The goods trains, and those by which animals are transported, do not proceed very quickly; they stop longer at stations, travel slower, and the animals must emit their excrements; part of the dung is no doubt dissolved by the urine, and falls through the seams of the waggon floor on to the rails. Now, I inquire what becomes of the urine during the journey. In a distance of fifty miles there are in many instances a hundred roads which cross the rails. Along these roads, or streets, cattle are driven. Animals, and especially cattle, are very susceptible to smell; they stop, smell, snuff on the ground, and so forth. I ask, does not this circumstance deserve some consideration? I only wished to draw your attention to it, and not by any means to anticipate your deliberations.

Mr. *Zlámal.*—With regard to the manner of cleaning or disinfecting—if a distinction ought to be made—I believe it depends entirely on the diligence and punctuality with which it is done, either by using hot water alone, or by combining with it other substances; therefore, upon this subject I will not further speak. A distinction has however been made: at times when epidemics are not prevalent, the cleaning alone suffices, but when they are, the disinfecting process must be employed. The Reporter has spoken of purification as performed at present, the use of alkali comes later, probably on account of its being supposed that the Rinderpest is prevalent in those regions from whence the waggons and transports come, or he has not included the alkali mixture as belonging to the means of disinfection; and then another means of disinfection ought to be named——

Professor *Müller.*—But it is named——

Mr. *Zlámal.*—And is therefore employed; therefore, it must be presupposed that it is used because the disease is prevalent at the present time. I would not make any distinction, because we never know whether or not an epidemic is prevalent. Gentlemen may read in the newspapers—as has just been proved by questions several colleagues have asked of me—that there is no Rinderpest at present in Hungary, because during the last fortnight no place has been officially named as infected; but, from a reliable source, I am informed that, only last Saturday, a well-authenticated case occurred near Wieselburg, and that the club had to be employed. The comitate of Comorn is likewise not entirely clear. I would, in this respect, make no distinction between cleaning and disinfecting. I would always recommend a complete cleaning process, and, when required, even chemical substances for the purpose. These suggestions must not be drawn up especially for the present time. The first locomotive which goes by way of the Baza pass, or the Rothenthurm pass, into Wallachia, destroys your quarantine, and then the waggons will be your quarantine establishments. The disinfection, therefore, of these waggons requires an unusual amount of consideration. I ask, What is done with the animals at the stations when they leave the waggons? Are they permitted to proceed without supervision to their several destinations? Different is it when they arrive at Vienna, where they are driven at once to the shambles; and, again, different is it when, for fattening purposes, they are disembarked at two or three stations; and wholly different is it when they are dairy or breeding cattle. About this, I find nothing in the whole propositions, and I repeat that, as railway waggons must sooner or later become the only quarantine establishments, we must settle the point how the cattle are to be treated so soon as they leave the railway-stations, provided it is not considered that the special directions for epidemics are already understood as being included in these proposals.

Professor *Reynal* declared himself in favour of leaving to different countries the practical suggestions as to the use of disinfectants. The progress of chemistry, he thought, must work a great change in the materials used, and as an illustration of this he might notice carbolic acid, which a short time since was unknown.

Dr. *Satory.*—I trust I may be permitted to state, in the question of the purification and disinfection of waggons, that I have heard nothing in the proposals respecting the cleansing of the steps which lead into the waggons, and which, during many years' experience, I have often found coated with decomposing excrements.

Professor *Müller.*—It is stated, waggons and landing places.

Mr. *Satory.*—This is very important.

Mr. *Stichel.*—I take the liberty to draw the attention of gentlemen to some existing regulations in reference to the transport of cattle in Poland. As is well known, every year a considerable number of the so-called steppe oxen is imported into Warsaw. Of these, a very small number is sent to the western part of the kingdom by railway. For the transport of these animals, separate waggons, which have the inscription, "Waggon for cattle from the steppes," are in use. Other cattle are never conveyed in these waggons. This transport happens on a certain day in the week, because our markets for the sale of cattle for killing are only held once a week. In cases where the transports are large, this, of course, could not be done. With regard to the purification of waggons, I am in favour of having the dung at the railway-stations burned or carried away; to have them cleaned by means of water-streams, solutions of ashes, and fumigations of chloride of lime. These agencies, I believe, would be useful in quickly cleaning the waggons; in Poland, however—I do not know how other countries are supplied in this respect—the working power is too limited to permit the undertaking of extensive purifications.

Professor *Müller.*—I shall now consider somewhat more closely the several propositions which gentlemen who spoke before me have made. With regard to the oil-coating, proposed by Director Gerlach, I quite agree to it. The more frequently the railway waggons are newly painted the better it would be, and the longer would they last; but there are grave objections with regard to its adoption on the floors. When the floor has been swept several times with a broom it gets so rough and uneven that a coating of oil could not be applied. The flooring also becomes so thoroughly impregnated and saturated with liquids that the waggon would require to stand empty at least fourteen days before it would be sufficiently dry to apply paint. If the railways think fit to adopt this suggestion, they are at liberty to do so, but they cannot be ordered to do it.

Director *Gerlach.*—The only thing to be done is to saturate the woody fibre thoroughly with oil.

Professor *Müller.*—Just so, but the oil will disappear instantly if hot water is poured into the waggon. Take, for example, the flooring of a room, pour oil on it, and afterwards hot water and alkali, and the oil will have disappeared. With regard to cleansing with hot water, I perfectly agree to it, even for usual cleansing. But one of the preceding speakers remarked that, when a waggon had been in use for some time, the flooring would be full of cracks and fissures wherein the dung, &c., would accumulate. It would then become necessary to use an alkali which, according to our knowledge, possesses the power of destroying contagion or contagious substances. We have not proposed the adoption of this law for a separate disease. It must be borne in mind that contagia are something organic, which become changed by the use of alkali; if through lime, potass, or soda, the oil will disappear. We must further recommend, as a disinfectant, a substance which, according to our experience, has been proved efficacious. I fully agree with the statement, and science convinces me of its accuracy, that boiling water destroys all contagium, but it cannot be always effectually used in a railway waggon. At many railway stations the men work with naked feet; they pour the water into the waggon, and wait till it has cooled down sufficiently before they commence scrubbing with the broom. Hot steam, likewise, cannot be used for the purpose, as was remarked by a former speaker. The waggon must be free from steam before it is possible to enter it. With regard to the chloride of lime, it may possess some good properties, but its use has likewise great disadvantages. Real advantages, when compared with potass, it does not possess, according to my opinion, and to use the vapour of chloride of lime is impossible. As the waggons are not hermetically closed, the steam escapes. Most of our waggons for the conveyance of cattle have oblique *laths;* therefore, by open stands, it is impossible to fix it, and, even when a solution of chloride of lime is employed, the sides have also to be washed with a solution of soda. Chloride of lime would, likewise, be more expensive. To this must be added the destruction of all colouring substances through chloride of lime. How is it possible to use a cattle-waggon in which chloride of lime had been employed for the conveyance of wheat or corn? Nevertheless, this would often happen. With regard to what Professor Hertwig has said about urine, I must confess I do not think that much dung will be thrown from the waggons; a little urine will certainly filter through the flooring, but this need not be much regarded. Urine, when only a few drops escape, will soon become decomposed. It must also be remembered that, because of the quick motion of the train, and for other reasons, urine will soon dry up. The dung will remain in the waggons. Gentlemen, we cannot legislate for every probability.

Professor *Hertwig.*—I thought that some one would recommend that railway waggons should have a double flooring.

Professor *Müller.*—This was proposed by Professor Rawitsch, but we struck it out. A double flooring would be a very good thing, but it is necessary to consider what it would come to. With a double flooring, the topmost floor must be placed in a groove; and with this would arise the necessity of double cleansing, because, when the upper flooring becomes damaged, the lower one will often be in a filthy condition. Besides, the upper flooring would warp and twist as soon as it got wet; it would be of great length and breadth in railway cattle waggons, and would by frequent wetting warp so much that the sliding process would soon become an impossibility.

Professor *Jessen.*—It is our duty to invite the attention of the boards of management of railways to this subject; they would soon devise plans to satisfy Professor Hertwig, and to ascertain whether a double flooring, or another reservoir, or conduit-pipes, to a certain point, were most to the purpose. This at present cannot be decided, but will be so soon as the railway authorities become convinced of the importance of the subject.

Professor *Müller.*—Two points diametrically opposed to each other have become prominent in this discussion. Director Gerlach proposes to simplify the procedure of cleaning; on the other hand, the adoption of a double flooring has been suggested. A decision on the subject becomes in consequence difficult; in fact, complicated. But there is a measure regarding diet, which could be influenced by the expression of the wish of the Assembly, namely, that the animals, when they are on a railway for two days, should be fed and watered several times.

Professor *Hertwig.*—Certainly; but this ought to be presupposed here.

Director *Gerlach.*—A distinction ought to be made, as is done in the report of the Commission, between the general measures to be employed, and those to be only employed during epidemics. When the latter are prevalent, or when sick cattle have been conveyed, then exceptional measures are required, and a general disinfecting process may be used. When Rinderpest is dominant in a region, and fears are entertained that sick cattle may be sent away, a double flooring and other precautionary measures may be adopted; but, above all things, I consider those measures of greatest importance which are in use daily for those thousands of waggons which continually move over the nets of railways in all countries. This is my principle; the most simple and the most secure. I cannot, therefore, relinquish the opinion that the waggons must not be permitted to become infected to such an extent as to render their disinfection impossible. Wood being porous, it dries and then cracks. This could be prevented by saturating it with oil; not painted or varnished, but the fibres of the wood must be saturated. On the surface it would not long remain clean: no matter, water would soon clean it. I cannot withdraw my motion. On most railroads it has already been introduced; it is not burdensome; the waggons last the longer. It ought to be adopted to prevent the waggons from being too deeply infected. Then the simple cleansing with hot water, especially with hot-water steam, will be sufficient, because it will not be necessary to enter the waggon. By means of flexible pipes the sides can be washed and cleansed. Competent judges give it as their opinion that this method is the quickest, the simplest, and the surest. In small stations no moveable boilers can be used, therefore other means must be adopted, for example, hot water for scouring or washing. In short, where there is only the honest will, the end is easily attained. To say thus much is quite sufficient. Should this method of disinfecting be adopted, we should then have given that security, that real security, which, by means of general measures, is obtainable.

Director *Haubner.*—I believe we fulfil our duty when we express the necessity of a permanent cleansing, or, if necessary, of disinfection when epidemics are prevalent. How this is to be done we can only indicate. I do not consider it necessary that we should say positively how it is to be put in practice. The previous speaker always insists on the use of water-steam; but, in my country, numbers of animals are conveyed in waggons which have no roofs, and a cleansing in this manner would therefore be impossible. Then, with regard to Professor Hertwig s scruples, I do not think there is any great reason for fear. Owing to the great rapidity with which trains pass crossings and roads only a few drops of urine could escape from the waggon, and I do not believe two drops would carry the infection.

Professor *Hertwig.*—It may happen.

Director *Haubner.*—No.

Professor *Jessen.*—I must protest against this observation.

Dr. *Rueff.*—The previous speaker has admitted the technical impossibility to manipulate with boiling water, and now he opposes the use of steam. I can assure you, from personal experience, that nothing is easier than the employment of steam, and that it enters into every crevice. Most gentlemen seem to have misunderstood the proposition of Director Gerlach. He does not mean to fill the whole waggon with steam, but to direct it to various or all parts of the waggon. When we employ steam, we no longer require hot water, because hot water only acts as a disinfectant at 60 to 80 degrees of heat. At this temperature it is unfit for manipulation; even at 50 degrees this is the case. Therefore, I am in favour of adding to the propositions of the Commission, "Only when, owing to local circumstances, water-steam cannot be applied, the cleansing with chemical substances may be resorted to," as has been already moved.

Professor *Müller.*—I believe this is essentially the same as we proposed. Whether we use hot-water steam—and it is only necessary to see a locomotive in motion to observe it drop down—or boiling water, is essentially the same, steam which——

Director *Gerlach.*—Possesses, under all circumstances, a heat of from 80 to 120 degrees, but hot water could not be used beyond 40 degrees.

Professor *Müller.*—As soon as the steam has left the pipe it loses several degrees.

Dr. *Rawitsch.*—It is not a question of cleansing alone, but likewise of disinfection.

Professor *Müller.*—I have concluded.

The *President.*—Does any one else desire to speak?

Professor *Fuchs.*—With regard to the use of water-steam for the cleansing of railroad waggons, I cannot speak from personal experience. But I have made inquiries of railway officials in my country if it may be easily used, and I received the assurance from all sides that it is the easiest method of cleansing railway waggons, after the dung had been removed by means of hot water. The second remark which I beg permission to make is, that I do not consider boiling water as necessary or even beneficial for the purposes of cleansing (not disinfection)—(Dr. *Satory:* It must precede the other)—because the albuminous compounds contained in dung will, through the use of boiling water, coagulate, and all the component parts of the dung would not be removed from the waggon. But if potass is used afterwards, then the coagulated albuminous compounds will be dissolved again, and the harm done by the means first employed would be negatived. But I do not consider this a subject of great importance. With regard to a coat of paint to the flooring of the waggon, to prevent the percolation of liquids, I consider it greatly to the purpose. But it has already been pointed out that a coating of oil would not produce this result, or that it would be too soon destroyed again. I therefore propose to draw the attention of the managers of railroads to the advisability of soaking the flooring of the waggons which are used for the conveyance of cattle with chloride of mercury or chloride of zinc. By this means a greater hardness and durability is given to the flooring, and the entrance of liquids into the wood is rendered more difficult; but should contagious liquids enter, the means used for the purpose of the cleansing would, it is hoped, destroy them.

Mr. *Ulrich.*—It appears to me that cleansing and disinfecting ought to be completely united, at first by means of the employment of boiling or very hot water for the cleansing of the flooring, and then finally, instead of potass, hot-water steam should be used. It is well known that the inherent degree of heat by hot-water steam destroys all vegetation and all animal life; therefore it may be admitted with certainty that, when applied in a direct manner to all parts of the waggons, it will likewise destroy infectious substances, should any exist. With regard to the condition of the flooring, I should like to add to the proposition of the previous speaker that the planks required for construction should be prepared in the same manner as those used for railroads, namely, that they should be saturated with sulphate of iron.

Professor *Fuchs.*—This would be a kind of ——

Professor *Reynal* (in French) moves the conclusion of the debate.

Professor *Fuchs.*—Only a few words. I did not assert that hot water was not sufficiently disinfecting: on the contrary, I admitted that it was. I only asserted that hot water, as was mentioned, is not fit for cleansing at the commencement, because the albuminous substances might coagulate. But then potass is to be employed, as hot as possible, or water-steam.

The *President.*—Does any one else desire to speak? Dr. Müller wishes to conclude the debate ; then we will proceed to a division.

Professor *Müller.*—I have to make a few observations about Dr. Ulrich's motion regarding the use of sulphate of iron. Used on a large scale, it does not appear to the managers of railroads to answer the intended purpose. In the agricultural show at Vienna in 1857 a project of this kind was exhibited.* But it appears that there is some hesitation about its use, or the managers of railroads would have long ago employed it in the construction of waggons. Whether sulphate of iron is able to strengthen the woody fibres to such an extent as to prevent the planks splintering when cleaned with the broom, experience must prove. But, however this may be, sulphate of iron could not be used without incurring expense. I have likewise to remark that our suggestions will not interfere with the practical working of the various plans. I have already remarked that the carrying out of these plans will vary in different places. But I cannot imagine how the pipes are to be conducted when ten, fifteen, or twenty waggons are placed in a row, and all are to be cleaned. If expensive contrivances are to be introduced, and this may be the case, then the expense of cleaning will be more considerable. The railroads will be obliged to charge perhaps one thaler per head, because gutta-percha pipes are soon destroyed through steam, nay, even by the use of hot water, especially when labourers use them somewhat roughly. I can only state that we have no intention to interfere with the execution of these measures; the practical working must be left to the railroad management. We have only stated principles, and intimated that the mode of procedure already in use is sufficient for the purpose. If steam is to be employed, there exists no objection to it.

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* In the printed official report of the celebration of the fiftieth anniversary of the Imperial Royal Agricultural Society in Vienna, p. 456, it is stated verbally: "On the part of the jury it is especially mentioned, that the impregnation of beech planks, invented by Mr. Antier of Paris, for the purpose of producing durable sleepers for railroads, has attracted general attention."

The *President.*—I shall put the various points to the vote, and, in doing so, refer to the motions submitted during the debate. The first sentence is: "The Committee proposes that the waggons employed for the conveyance of cattle should be cleaned each time after they have been used." It is self-evident that this cleansing of waggons has to be done, no matter what kind of animals have been transported therein. All gentlemen who are in favour of this motion will rise. (Adopted by a large majority.) The second point refers to the disinfecting system, which the Committee wishes to see distinguished from the process of cleaning. Disinfection shall be employed when either notoriously sick cattle, or such as come from regions where a malignant contagious disease is prevalent, have been transported. The Committee has used the following words: "Articles of conveyance which have been used for the conveyance of animals suffering from a contagious disease must be disinfected." This is the first part of the motion. "A disinfection of all means of conveyance is likewise necessary each time after their having been used in such regions and at such times when a virulent contagious disease is prevalent." This is the second part. I believe on this point no dissent has been expressed. (Cries of "Vote.")

Dr. *Zlámal.*—I submitted a motion that the procedure should be each time equal.

The *President.*—Then there would be no difference between cleansing and disinfecting. But this difference, by the adoption of the first point, has been placed beyond question. When nothing is known of prevalent epidemics, a cleansing process is only necessary to prevent the animals which follow from standing in the filth of the preceding cattle.

Dr. *Fuchs.*—I beg leave to remark that in Baden this distinction has been made, and is at present in force: Every waggon which has been used for the transport of cattle must be cleansed at once; but disinfected only when it has been used for the conveyance of animals suffering from really contagious diseases. (Cries of "Divide." The question is put to the vote.)

The *President.*—The second point has likewise been almost unanimously adopted. By the third point the different motions submitted cross with the proposal of the Committee: "3. As means of disinfection, are recommended"—it is not said must be used—"the cleansing with boiling water, and succeeding careful washing with a hot solution of potass; a mode of procedure which has been introduced by law in Austria and Switzerland." Now we proceed to the counter-motions. As far as I can learn from them, they imply that disinfection with a solution of potass is superfluous when washing with hot water has been effected, or when an influence has been exerted by means of hot-water vapours. I shall put these two motions separately to the vote, commencing with the motion of the Committee.

Dr. *Gerlach.*—My motion is the most simple; I therefore beg it be put to the vote.

The *President.*—It might be said that the lesser is comprehended in the greater; therefore I leave the matter in the hands of the Assembly.

Dr. *Gerlach.*—My motion is more simple.

The *President*—Do gentlemen desire the motion of the Committee or the modified motion to be brought to a division? Those gentlemen who are in favour of the first will rise. It is adopted by an immense majority. I shall now read it again (reads point 3 as given above). Those gentlemen who are in favour of it will please to rise. (Voices: "Compare once more the motions." "Embody in words the second motion." "We have not understood it clearly.") It is the motion of the Committee; the other I have not yet embodied in words. If the first passes, the latter will fall to the ground. I shall read it once more. (Reads point 3 again.) Gentlemen who are in favour of this motion, as it stands, will please to rise. There appears to me to be a majority; but, if gentlemen desire it, I will request the "nays" to rise.

Dr. *Gerlach.*—I consider my motion as lost, and will submit another, namely, that what I have proposed should be mentioned as worthy of commendation.

The *President.*—I intended to do so. I do not think the Committee would hesitate to add, that instead of the use of hot water, hot-water steam may be employed. (Signs of assent.) And——

Dr. *Gerlach.*—And keeping in repair with oil.

The *President.*—This would be another point. Are gentlemen in favour that the alteration, "hot water, or hot-water vapours," be inserted? (Yes.)

Dr. *Hertwig.* — These are points which must be treated according to places and circumstances.

The *President.*—It has been repeatedly stated that the directors of railways should be advised to saturate their waggons with oil, to paint them, to provide them with iron floorings, &c. All these concern the durability of the waggons. I, for myself, must confess I do not think we are called upon to suggest to managers of railroads a means of rendering their waggons more durable. We can only express a desire that certain measures may be adopted during and after the transport of cattle, to protect the animals against infection, but do not wish to lay down a plan of procedure to railway managers.

Dr. *Ulrich.* — The addition would then, according to my opinion, run thus: That when hot-water vapours are employed, chemical substances would become unnecessary.

Dr. *Müller.*—In this case, I am opposed to its adoption.

Dr. *Gerlach.*—I beg leave to propose, That the saturation of the waggons with oil is worthy of commendation, because by this means the infection of the waggon becomes lessened.

The *President.*—Is the motion of Gerlach supported? (Three members rise.) I shall nevertheless put it to the vote. Shall there be inserted amongst the resolutions, that the assembly considers it desirable to recommend to the managers of railroads to have the wooden parts of their waggons which are used for the conveyance of cattle saturated with oil, to prevent the absorption of the accumulated products of diseased animals? Gentlemen who are in favour of this motion will rise. (They rise.) The result is doubtful. I beg those gentlemen who are against it to rise. The motion is lost. The 4th point is: "The disinfection of railroad waggons and ships renders a supervision by veterinary surgeons necessary." All who agree to this will rise. (They rise.) The motion is passed by general consent. We thus have decided on the second subject of our programme. The opinion of Professor Perosino, that a solution of sulphate of iron is worthy of adoption for the destruction of ammoniacal exhalations has not been approved of by the Committee. Therefore it is only mentioned in the proceedings.

Dr. *Zangger.*—I beg to remark, that Professor Perosino himself has voted against its adoption. He only expressed an opinion and afterwards allowed the subject to drop.

The *President.*—Therefore it only appears as a remark in the minutes of the proceedings. Gentlemen, before proceeding to regulate the order of the day for to-morrow, permit me to observe, that we, the members of the Preliminary Committee, have, in fixing the days for an inspection of the different collections, not mentioned the Veterinary Institute, because we were convinced that members of the Assembly would frequently honour the Institute with their visits. Many gentlemen present have afforded us that pleasure. But as other gentlemen would, perhaps, prefer visiting us in a body, I beg leave to propose Saturday afternoon next for an inspection of the Veterinary Institute. If gentlemen agree to this, we shall feel honoured. (Assent.) I shall make another observation. We, as a very young peripatetic assembly, have not even rules of association. In other societies of this kind it is usual, about the middle of the sittings, to decide on the time and place of the next meeting. As towards the conclusion of these meetings many gentlemen will probably leave, it would be as well that those members who wish, with regard to the time and place of the meeting of the next Congress, to propose resolutions, should hand them in to-morrow to the President. I intend to make this to-morrow, after reading the order of the day, a subject for deliberation, and for that reason appoint the hour of meeting at nine o'clock a.m.

FOURTH MEETING, 27TH AUGUST, 1865.

President, Dr. RÖLL. *Secretaries,* Drs. FORSTER and PROBSTMAYR.

The *President.*—I request the Secretary to read the minutes of our last meeting.

Dr. *Probstmayr* reads.

The *President* (after the reading).—Are there any objections? (After a pause.) The minutes are adopted. Before we proceed to the order of the day, I take the liberty to acquaint the Assembly with what has come to hand since yesterday: First, we have a decree from the Ministry of State, wherein it is announced that, according to a communication from the Ministry of Foreign Affairs, dated 19th of August, 1865, the Servian Government has nominated Dr. Jankovics as its representative at the second International Congress of Veterinary Surgeons. The Doctor is in Vienna, a ticket of admission will therefore be sent to him at once. We received further: Bibliografia nuovo cenao illustrativo sulla causa della Rabbia Idrofobica; pensamenti del S. Luigi Zoffoli; it will be laid before the members in the reception room. Also, a letter from Veterinary Surgeon Zündel, from Muhlhausen, wherein he expresses with regret his inability to be present at this Congress. There are also ready for distribution, 'The Hoof-plane, the only perfect and patented instrument for preparing horses' hoofs for shoeing, invented by the Department Veterinary Surgeon Erdt, in Cöslin;' a publication by Prof. Spooner: 'Report from the Select Committee on Cattle-Diseases-Prevention, and Cattle, &c., Importation Bills; together with the Proceedings of the Committee, Minutes of Evidence, and Appendix. Ordered to be printed by the House of Commons, 27th of June, 1864.' During the term of these meetings it will be found in the reception room. Lastly, a manuscript communication from Mr. Wilkinson, 'The Veterinary Medical Department of the British Army.' Extracts of it will be communicated in the official report of the Congress. I have also to acquaint the Assembly, that, in accordance with a request, several members have intimated their willingness to deliver lectures, or propose subjects for the deliberation of the Congress. (1) Professor Fuchs has moved, which is in accordance with the opinion I expressed at our first meeting, that gentlemen should communicate the results, so far, of the resolutions passed at the first Congress in Hamburg. I shall place this on the order of the day as soon as the discussion of the programme is exhausted. Professor Fuchs has further expressed a wish that, so soon as the deliberations on the subjects contained in the programme are concluded, the following question may be prepared for consideration: "Does there exist an inflammation of the lungs in cattle which has not been produced by extraneous influencing causes, and which, although similar to Pleuro-pneumonia, is not infectious?" and should this question be answered in the affirmative, "How is the one to be distinguished from the other?" (2) Professors Rawitsch and Unterberger will deliver lectures on the Siberian Pest. (3) Prof. Reynal has asked the following questions:—"Can the contagious typhus of horned cattle communicate itself to animals of the ovine species?" "Can animals of the ovine species in their turn transmit the contagion to oxen and to animals of other species?" "Is inoculation with the contagious typhus an efficacious prophylactic measure against the propagation of that malady?" "Is the typhus indigenous in Southern Russia: does it appear spontaneously only in the animals in that country?" (4) Prof. Jessen communicates that, in accordance with a wish expressed by several members, he intends at the conclusion of the debates on the subjects of the order of the day, if sufficient time remains for the purpose, to give a short summary of the present state of the inoculation question with regard to Rinderpest in Russia. We have likewise received a (5) communication from Dr. Hadinger of Moravia, representative of the Moravian Imperial Agricultural Society, in which he asks that a lecture on the originating causes of the Foot-and-Mouth Disease be placed on the programme. (6) A memorial of Comitates-Veterinarian Zwickel on "Quackery and Secret Remedies." It depends of course entirely on the Assembly how long its meetings are to last. I think it probable that our deliberations on the 3rd subject of the programme will finish to-day, and that the place and time of meeting of the next Congress may be fixed. To-morrow we could commence the discussion on the 4th subject of the programme, and perhaps conclude them. According to the programme, the meetings of this Congress were intended to continue only through the current week. If all these subjects are to be discussed, I question the possibility of that being done in one meeting. It depends now entirely on the members to decide which of the proposed subjects they consider sufficiently important to be included in the debates, that we might place these on the order of the day; or to say if they intend to continue the meetings until all the subjects of debate have been exhausted. Perhaps some of the gentlemen may make a proposal in this respect.

Dr. *Hertwig.*—I wish to ask if we could not meet on Sunday, if only for a short time, should we be unable to conclude our deliberations on Saturday? I remember that during my former residence in Vienna—and I believe this is still the case—grand concerts used to take place about noon on Sundays. If these concerts do not violate the sanctity of the Sabbath, I scarcely think we shall be judged very severely if we occupy a few hours of the same day in our deliberations. I leave it to the Congress to say whether this is seemly or not. Every subject which is left after Sunday must remain undecided. Our Congress, like all other things, must end some time. There are certain subjects of deliberation about which agreement will not be very easy. This is especially the case with regard to the utility of inoculation by Rinderpest, and the originating causes of the Foot-and-Mouth Disease.

The *President.*—I believe there exists no impediment to our meeting on Sunday.

Dr. *Hertwig.*—We could, of course, respect the time when divine service is being celebrated.

The *President.*—We might assemble somewhat later, about ten o'clock.

Dr. *Fuchs.*—The President will be best able to judge.

The *President.*—Since there is no objection, I shall consider the motion that we hold a meeting on Sunday morning at ten o'clock as adopted. Permit me to observe that should several subjects of importance remain after Sunday for deliberation, we might assemble again on Tuesday—(on Monday the excursion to Altenburg takes place)—for a short final discussion; but this we can determine at our meeting on Sunday. We proceed now to the order of the day, on which we find set down for consideration the third subject of the programme, concerning Hydrophobia. It is intended to determine unanimously, if possible, the principles of rational regulations concerning dogs. I believe that I act in accordance with the desire of the Congress when I request those gentlemen who intend to participate in the debate not to deviate from the matter under discussion. Hydrophobia is a subject in deliberation regarding which digressions may easily take place; if this should happen, we could obtain no result from our debates regarding this question. Therefore, without intending to anticipate the determinations of the Assembly, which possibly may be of an opposite nature, I propose that gentlemen should strictly adhere to the expression of the programme, namely, "To establish the principles of rational regulations concerning dogs."

Mr. *Ernes.*—Gentlemen; I propose that no member of the Congress shall be permitted to speak more than once on the subject under deliberation. Whoever wishes to say anything may do so without rising several times. Some members speak two or three times on the same subject, so that others are prevented from expressing their opinions at all.

The *President.*—I believe that it will at times be found necessary to permit a member to speak with regard to the correction of facts. I don't think, however, the adoption of Mr. Ernes's motion would prevent this. I shall therefore submit it to the vote of the Assembly. Gentlemen who desire that no one shall speak more than once on the same subject (personal remarks and corrections of facts excepted) will please to rise.

Mr. *Ernes.*—Interjections likewise excepted; they are permitted. (Only a few members rise.)

The *President.*—The majority is against the adoption of this motion. Professor Pillwax, as Reporter on this subject, will now address you.

The *Reporter* (Dr. Pillwax).—Gentlemen; I have the honour to open the deliberations on the third subject of the programme—which has reference to a form of disease that certainly does not so deeply and extensively concern the international interests of European countries as the deliberations and final determinations of former meetings with regard to the period of quarantine for the prevention of the introduction of Rinderpest, the treatment of animals and animal produce, during the prevalence of Rinderpest, as articles of international commerce, and the disinfection of railway waggons and ships employed in the conveyance of cattle; but which is nevertheless of great importance and worthy of consideration, because this form of disease not only exerts a great influence on the health of our domestic animals, but likewise—and this is more important still—on the health and life of human beings, since, when the disease has been transmitted to them, life falls a sacrifice to it. This is Hydrophobia, which not only appears sporadically, but at times assumes an epidemic extension, as has been the case several times in the course of this century. Thus the disease appeared epidemically in 1815, in Vienna and its environs, in 46 cases, the epidemic character of which cannot be doubted, as 43 of these cases occurred to dogs which, as was proved, had not been bitten. The disease appeared in the same manner in several countries during the period from 1816 to 1830; for example, in Vorarlberg, in Switzerland, in Saxony, and especially, in 1828-29, in Dresden, while 39 cases occurred during the year 1830 in Vienna. Between the years 1830 and 1840 only a few cases of Hydrophobia appeared here; and it is especially worthy of notice that during the very hot summer of 1834 only one case occurred in Vienna and its immediate neighbourhood. In the year 1838 this disease again appeared here in an epidemic form. During that year 7 cases occurred; in 1839 they increased in number to 63; in 1840 only 42 cases were observed; but in the year 1841, 149 cases of Hydrophobia occurred, a number unprecedented here, and decidedly alarming. Next year 42 cases occurred, and in 1843 only 2 cases. From 1843 to 1847, only a few cases occurred annually in Vienna and its neighbourhood. In the year 1847 the number of rabid dogs commenced again to increase. In the year just mentioned there occurred 14 cases; in the following year, 1848, 19 cases; in 1849, 17 cases; and in the year 1850, 20 cases. During the years 1855-1860, when Hydrophobia was extensively prevalent, especially over great part of Northern Germany, France, and Spain, remarkably few cases of the disease occurred in Vienna and its neighbourhood—excepting 1855, during which there were 16 cases, namely, 15 dogs seen during life, and 1 case in a dog the post-mortem examination of which proved the existence of Hydrophobia. During the first few years of the present decennary the disease was prevalent very extensively in Rhenish Prussia. In Vienna, the cases became likewise, about the same time, more frequent, and in the year 1860 we counted 12 cases of Hydrophobia; in 1861, 10; in 1862 they increased to 32; but in the following year, 1863, we counted 29, and in 1864, 24 cases. During the current year, 9 cases of Hydrophobia have occurred. The frequency of the appearance of cases of the disease during the last few years, explains the terror and anxiety of the public with regard to the increase of this frightful malady. To this the newspaper reports have likewise contributed, because, as they state each individual case which occurs, they keep alive and increase the apprehensions of the public. I, for my own part, believe that the increased publicity given to the appearance of this disease has produced good and beneficial results. The public has by this means been induced to pay more attention to dogs and their state of health, and in this increased attention may partly be found the reason that comparatively few human beings are bitten by rabid dogs. We may frankly confess that, with regard to the nature and causes of the disease, we have only suppositions and no certainties, and that we are quite powerless with regard to the treatment and suppression of Hydrophobia. We are not yet able—at least as far as my experience and knowledge go — to cure Hydrophobia when it has once made its appearance. We need not be ashamed of this inability, for the physicians are in the same predicament. As soon as the first symptoms of the disease, produced through the bite of a rabid dog, have appeared in a human being, the medical men of the present day are no more able than were those of two thousand years ago to prevent its further development: the person attacked is beyond all hope. The terrible consequences which, under certain circumstances, are produced among human beings by Hydrophobia, and our own inability to overcome the disease, seem to render it in the interest of the State, to which is intrusted the care of protecting its citizens—in the interest of the public, which views with anxiety and terror the increase of the disease—and in the interest of science, many representatives of which are here assembled—highly important that this Congress should deliberate on those measures which may contribute, if not entirely to prevent the appearance of the disease, at least to limit and remove its originating causes as much as possible, and to mitigate its destructive effects on human beings and animals. I take the liberty, before we mention and discuss these measures—in accordance with the desire of the Committee which has been elected for the consideration of the question of Hydrophobia, and which consisted of Professor Jessen, Professor Husson, Police-Veterinarian Sondermann, and myself, with the addition of Professors Tscherning of Copenhagen, Furstenberg of Eldena, and Leisering of Dresden—to propose for your deliberation a question which is of great importance, because on your answer depends the advisability of retaining or abolishing those measures which have been put in practice in some countries with regard to Hydrophobia. This question is: Is Hydrophobia really a specific and independent disease, originating a contagium peculiar to itself, the so-called Hydrophobia virus, which, transmitted to animals or human beings by means of a bite or of artificial inoculation, will be able to produce the same disease; or is this not the case? From time to time opinions of a contrary nature have been held amongst medical men; and only very lately a physician, resident in Vienna, asserted that Hydrophobia in human beings produced by the bite of a rabid dog belongs properly to the realms of chimera and fable, and is a tradition which has come down to us from the times of the sons of Æsculapius, still circulating, not merely amongst the general public, but even amongst medical men. It has likewise been asserted that the existence of Hydrophobia as an independent disease has not been as yet scientifically ascertained; and that the process to which the name "Hydrophobia" is given belongs to several most varying processes of disease, because as yet no specific appearances nor pathologico-anatomical changes appertaining exclusively to Hydrophobia have been observed in animals and human beings that have died of this disease. Others, again, are of opinion that Hydrophobia is nothing else than tetanus, and may be produced not only by a rabid dog, but likewise by a healthy animal; in fact, in consequence of any hurt or wound, or even without any such medium. The consequence of this assertion would be, that all measures in regard to Hydrophobia which have been put in practice as yet, must be considered useless and superfluous, and their abolition desirable. Let me here express the opinion, in consonance with that of the members of the Committee, that these forms of diseases originate a contagium peculiar to themselves—the so-called Hydrophobia virus—which, when transferred to animals or human beings, is able to produce the same disease. That this is really the case is proved, not only by the numerous observations which have been made by the most distinguished veterinarians of all times with regard to cases of Hydrophobia which have been produced in our domestic animals in consequence of bites by rabid dogs, rabid wolves, and rabid foxes; but by many cases where Hydrophobia has been produced in human beings in consequence of the bite of rabid dogs, cases which have been noted down and described by the most distinguished medical men from ancient times down to our own, and which often are even officially stated. If the disease which appears in human beings and animals in consequence of the bite of a rabid dog is observed and investigated attentively, it must be confessed honestly and without prejudice that in all these descriptions, from the oldest to the present time, only one form of disease is apparent, namely, a completely independent disease, which can only appear in consequence of the bite of a *rabid* dog, and never through the bite of an animal which is *not rabid;* for the bite, as such alone, cannot cause the disease, but the bite of the rabid dog introduces the contagium into the torn and lacerated tissues. To prove this assertion I beg leave to mention here, that during the year 1862, when Hydrophobia appeared in Vienna as an epidemic, 522 dogs were brought for examination into the Veterinary Institute, and, with the exception of 32, all were found not to be rabid. The examinations and observations proved that the other 490 dogs, with the exception of a few cases of mange and epilepsy, were perfectly healthy; and official reports state that the majority of these dogs had bitten human beings, but not one of those who had been bitten by these not-rabid dogs died of Hydrophobia. Only one boy, who had been bitten in the face by a dog at times furiously rabid, was attacked by Hydrophobia on the 24th day after receiving the injury, and died of the disease on the third day. This is officially stated. Since the year 1848, during which period I have had the examination of animals really rabid, and suspected of having the disease, every year between 300 and 400 dogs have been brought into the Veterinary Institute, because they had bitten human beings. They were suspected of having Hydrophobia by the authorities, until their state of health had been ascertained. Although the number of these not-rabid and generally perfectly healthy animals, amounts to beyond 5000, yet not one of the persons who had been bitten by any of those 5000 animals has died of the disease. But, according to an official report of the Board of Management of the Imperial General Hospital, four persons have died since the year 1848 of Hydrophobia, and these, as is stated officially, had been bitten by rabid dogs. This ought to be accepted as a proof that the bite of a dog, merely *quâ* bite, is not able to cause Hydrophobia; otherwise, amongst the great number of persons who have been bitten, many more cases of Hydrophobia must have occurred than only those four which have been recorded. If I consider the proportion between the number of persons bitten by rabid dogs, and persons in whom Hydrophobia results, I find it varying. The observations of Hamilton have proved that of from12 to 19 of those who have been bitten only 1 falls a sacrifice; those of Hunter and Vaughan, that of from 20 to 30 only 1 dies of Hydrophobia; and those of Bouley, that out of 25 1 becomes rabid. Here, in Vienna, we have obtained experiences of a different sort. In the years 1841 and 1862, of 12 persons who had been bitten in each year, 1 died of Hydrophobia. If we adopt the proportion which is most favourable to the opponents of our opinion—that of 30 who are bitten only 1 falls a sacrifice—there ought to have occurred, if the assertion is true that the bite of healthy dogs can likewise produce Hydrophobia, many more cases of the disease amongst those persons who had been bitten by the 5000 dogs; but this, we have seen, is not the case, as only 4 persons were attacked by Hydrophobia. Lastly, the appearance of the disease, produced with undeniable success by Renault of Alfort, Hertwig of Berlin, and the former Director of the Vienna Veterinary School, Dr. Eckle, in different domestic animals to which the virus had been transmitted, partly by means of bites and partly by inoculation, proves beyond contradiction that Hydrophobia is an independent form of disease, that it is no chimera, and that it may be communicated by means of a bite or of inoculation. The post-mortem examinations of animals which died of this disease have certainly not furnished signs of any specific changes which could be considered as exclusively belonging to Hydrophobia—on the contrary, the most different processes of disease have been observed in these dissections; but this does not justify the assertion that Hydrophobia is not an independent disease. It is a well-known fact that the results of post-mortem examinations in many other diseases have not supplied us with final reliable explanations, and this is likewise the case with regard to Hydrophobia. And if we consider, for example, the really specific form of the disease of pox, we find, in sheep which have died of this disease, the most different processes—pyæmia, ichorous mortification of the mucous membrane of the nose, the throat, and the intestinal tract, œdematous lungs, inflammation of the lungs, croupous exudations, &c.; in one word, the most various processes of disease. Why, if this is the case in regard to pox, a specific disease, should it not also be possible in regard to Hydrophobia? Why should it not be possible that different processes of disease may become connected with the specific disease of Hydrophobia? I believe that, as experience has proved in thousands of sad cases the existence of Hydrophobia and the possibility of its transfer to human beings and animals, the results of the post-mortem examinations ought not to be taken as absolute rules; and perhaps, in time, pathological chemistry, in connexion with microscopical research, will make apparent to us those changes which specifically appertain to this disease. In conclusion, permit me to remark, with regard to the assertion that Hydrophobia is nothing else than tetanus, that this is by no means the case as far as animals are concerned. In the hundreds of cases where I had an opportunity of observing rabid dogs, I never found the slightest trace of tetanus —(cries of "Never!")—from the commencement of the disease to the death of the animal; and I therefore declare that

Hydrophobia is not tetanus. And from everything I know in this respect with reference to human beings, partly from personal observation of one case, partly from what I have read about Hydrophobia in ancient and modern works, I have been convinced that this disease is entirely different from tetanus; and every one who investigates the two without prejudice must arrive at the same conclusion. I repeat, therefore, the previously expressed opinion, and I do the same on behalf of the Committee, that Hydrophobia is an independent specific form of disease; that it is no complication of symptoms which is likewise found in other and different diseases; and that it originates a virus, the so-called Hydrophobia contagium, which, when transmitted to human beings or animals, is capable of producing the same disease. Owing to the great importance of the question, I consider it indispensably necessary that gentlemen should communicate their opinions and experiences in this respect.

Dr. *Fuchs.*—I beg that the report be first read.

The *Reporter.*—I have not concluded yet. I only propose that, in the discussion which will follow, gentlemen should express their opinions. The Committee, guided by the opinion that it is necessary to indicate the measures which may prevent the development and extension of the disease, and which are requisite for its extermination, has agreed—(reads from the report of the Committee)—that the introduction and strict execution of rational regulations concerning dogs furnish the most certain means of preventing the development and extension of the disease, and of making its extermination possible; and that, therefore, the introduction of regulations concerning dogs, of a character as uniform as possible in the different countries, is highly desirable.

The Committee is of opinion that the following points ought to be included in such regulations concerning dogs, and therefore takes the liberty of proposing them to the Assembly for adoption:—

1. In all the towns and villages of a country a conscription of dogs—a dog-census—ought to be established, and, for this purpose, a list of the number of dogs, uniformly drawn up, ought to be kept in every parish throughout the country.

2. The identity of each dog shall be determined by means

of a mark or token. The manner of putting this into practice must be left to the local authorities.

3. An endeavour ought to be made to reduce the number of dogs as much as possible, and the Committee considers the introduction of a dog-tax as one of the best means for this purpose. This tax ought to be at least equal for male and female dogs; according to the views of the Committee, female dogs ought to be taxed even higher, because this would produce a reduction in their number. All dogs ought to be made subject to this tax. Whether the tax on certain dogs which are used in certain occupations shall be reduced, or whether such dogs shall be exempt from it entirely, the Committee will not decide.

4. Care must be taken to prevent the running about of dogs without proper supervision; this applies especially to bitches during the rutting season.

5. The introduction of muzzles the Committee considers only necessary in those districts where cases of Hydrophobia have occurred. The period during which muzzles ought to be worn depends on the amount of danger, and must be left to the decision of competent judges in each individual case.

6. In States where as yet no rules exist with regard to the reporting of contagious diseases, all dogs which are suspected of Hydrophobia, or are really rabid, shall be at once reported to the authorities.

7. Rabid dogs, and those which they have bitten, or those which have been brought in contact with them, must be killed under all circumstances. Dogs suspected of Hydrophobia must be kept in secure custody, and under careful observation, until their state of health has been ascertained. If they should prove to be rabid, they must be killed; if not, they may be returned to their proprietors. If in any animal which has been killed on suspicion of being rabid, the slightest signs of Hydrophobia are discovered, all dogs which it has bitten, or which have been brought in contact with it, are to be killed. It is a matter of course, that in cases of Hydrophobia the requisite measures of disinfection must be employed. With regard to the visitation of dogs, the majority of the members of the Committee are of opinion that it may contribute indirectly to the reduction of the number of cases of Hydrophobia, because it may cause a reduc-

tion in the number of dogs which are either vicious, or suffering from loathsome and contagious diseases, and may offer a favourable opportunity of acquiring knowledge with regard to the keep of dogs, and to the detection of Hydrophobia.

8. The Committee is of opinion that, if all these measures are really to result in efficiently obtaining the desired end, competent veterinarians must co-operate in their execution; and that every dog-proprietor at the time his dog is inscribed in the conscription-lists should be furnished with printed and easily-understood instructions how to keep dogs healthy, and how to detect the symptoms of Hydrophobia, as well as information respecting those measures of veterinarian police which are necessary for the prevention and extermination of Hydrophobia.

These are the propositions which the Committee has considered it necessary to submit; and it now begs the Assembly to express its views with regard to them.

The *President.*—The debates would proceed best, were we to consider first whether the introduction of uniform rules concerning dogs is desirable or not; and this must be considered with regard to the question proposed by the Reporter, namely: Is Hydrophobia to be considered a specific disease which can be transferred to human beings, or is this not the case? As soon as the discussion on the general bearing of the question is finished, I shall introduce each point of the motions separately for deliberation, and then the several amendments might be added to each paragraph at once. Medical Counsellor Fuchs will now speak on the general question.

Dr. *Fuchs.*—As a Member of the Committee, and with its sanction, I beg to say a few words on the general question, and to explain a few points which the Reporter, from his functions, was not in a position to explain. We have retained the title, "dog-regulations," as it stood in the programme; but what we have produced is, in reality, no system of dog-regulations, and therefore does not deserve this title; to a system of dog-regulations other measures which we have not indicated also belong. We have likewise limited our deliberations to what concerns dogs only, although in a system of dog-regulations provisions may also be made regarding other animals which may be affected with Hydrophobia. The difficulties which are met with in the course of deliberations on veterinary subjects, as has been frequently felt during the proceedings of this Assembly, are manifold. During the debates on Rinderpest the difficulty was experienced not only on scientific points, but also, and principally, on points of national economics. In the course of the deliberations on the subject of a code of dog-regulations it has been otherwise; the difficulty has been less economic than it has been technical, and has consisted in the overcoming of certain prejudices and the combating of certain philanthropic views and opinions. These difficulties are very great, as every member of the Assembly doubtless knows. The dog is pre-eminently, among all the domestic animals, the friend of man, because more than all other animals it is like man. First, this is the case with regard to its instinct of gregariousness; secondly, with regard to its intelligence; and, thirdly, because it is able to follow man in all the various conditions and occupations of life. For these reasons, man is extraordinarily fond of the dog, and it is difficult to oppose statutes to this feeling and conviction. Nevertheless, by means of our regulations, we keep the introduction of an important philanthrophic measure in view, and seek, by reducing the cases of Hydrophobia amongst dogs, to protect human beings against the attacks of this terrible disease. I have expressed myself in favour of a dog-tax and visitation of dogs, although the views on this subject throughout the country which I have the honour to represent here, are entirely different from my own. In my country a dog-tax has already existed for a number of years. In the commencement, the amount of this tax was very trifling; and it did not exert sufficient influence, and produced not the effect of reducing the number of dogs in general (since it rather appeared that the number of dogs increased in the same proportion as the amount of the tax was raised) the opinion gained ground amongst the authorities that the dog-tax, from a financial point of view, was altogether a paltry affair. In all, it produced only about 100,000 thalers (15,000*l.* sterling). A great part of this sum is used by the Examination Commissions, half of the remainder goes into the Treasury of the State, and the rest belongs to the parishes. The pecuniary part of the question in my country is of no consideration; but as the dog-tax has not affected a reduction in the cases of Hydrophobia, nor in the number of dogs, it is seriously contemplated to abolish the dog-tax and visitation of dogs entirely. I am opposed to this, for the reason that I do not think the dog-tax, as such, or the visitations, have produced this failure, but the means which were employed to collect the tax, and the manner in which the visitations were performed. In our country, male dogs are subject to a tax of the amount of 4 florins per annum, and females of 2 florins. The tax on dogs used for certain industrial purposes is less. Twice every year a visitation takes place; the principal visitation during a month in summer, the second during a month in winter. This method I consider open to objection. I object that female dogs should be taxed to a less amount than males; and I likewise consider it wrong that dogs should only be inscribed upon the lists when a visitation takes place. I believe it would be more advantageous that dogs, as soon as they have a proprietor, should be reported to the police; because during the time between the first and second visitation (four or five months) the proprietor of a newly-acquired dog pays no tax for it at all. When the time of the visitation arrives he has, through the possession of the dog without paying tax, become so used to the animal that he would not like to part with it; and for this reason, and to satisfy the entreaties of his family and children, he prefers to pay the tax. It ought to be known how dogs often come into families. They are frequently brought home by children, especially young puppies. They are tenderly brought up, and when the period arrives for the payment of the tax, it is not possible to part with them. But if the tax had to be paid at once, as soon as the dog came into the possession of a new proprietor, it would produce quite another effect. The same applies to female dogs, in respect to which I am of opinion that they ought to be taxed at least as high as, if not higher than, males. The legislation of the country to which I belong has made the remarkable mistake of taxing female dogs less originally, for the reason that it was supposed Hydrophobia in male dogs was caused principally because they are not able to satisfy their sexual instincts. The keeping of female dogs it was therefore intended to encourage, in order to give an opportunity to the males to satisfy their sexual desires without impediment. Another law which appeared later

—and which is quite correct, when considered from the position the Commission occupies—directs that bitches, when they are in heat, shall not run about in the streets, but must be kept confined within the houses; but nevertheless they sometimes escape into the streets, and then the mischief is, of course, the greater. These are the evils which, according to my opinion, prove that in Baden it was not the tax itself which prevented the obtaining of the desired end, but the way in which it was collected. During the debates I shall communicate more in detail the results of experience from my native country with regard to this subject.

Dr. *Hertwig.*—With reference to the question stated at the outset, whether Hydrophobia is a specific disease, or is the same disease as tetanus, I believe the Congress may without further discussion express the opinion that the latter assertion is entirely erroneous, and therefore need not form the subject of further deliberation. If measures may and can be adopted against Hydrophobia, and whether they are useful or not, are subjects not worthy to be discussed here. In medical publications this subject has been decided in the same manner. Toward the end of last century Marshal and Fothergill in England asserted the same; and in the first quarter of the present century the then celebrated hospital surgeon Textor, of Würzburg, stated that Hydrophobia in animals differs from the same disease in human beings. Animals never evince any dread of or aversion to water; consequently, it is a disease which has no connexion whatever with the disease in human beings, and therefore no measures are required. All experienced veterinary surgeons know that the case is different, and therefore I will only now express at once my entire approval of all the measures proposed by the Committee, especially with regard to the increase of the amount of the tax—not only an equalisation of the amount, but an increase—on female dogs. Another point is, that the introduction of a dog-tax, muzzles, &c., should not be limited to towns, but must be extended to the open country. During a period of forty years, whenever Hydrophobia spread epidemically I have always observed that dogs belonging to peasants or other persons living in the country, and running free, without supervision, into the towns, were the first cause of the extension of the disease. I will not doubt the possibility of Hydrophobia acquiring an epidemical character, in consequence of atmospheric influences which are unknown to us. But practically it is a contagious disease; it is communicated by means of bites, and often by other means of infection, which we are not always able to ascertain. The measures ought therefore to be of a general character. (Applause.)

Dr. *Deisinger.*—Gentlemen, during the last two days scientific celebrities have spoken from this place, and now a simple Bavarian veterinary surgeon begs leave to say something, after an experience of twenty-five years, on a subject which we have caused, by our useless and aimless measures, to occupy an unnecessary prominence. We know the disease in individual animals; we have likewise observed its special peculiarities with regard to the appearances and the course of the disease, in consequence of spontaneous development in dogs; and, in spite of everything we have read and heard, not one of us knows as yet what we all so much desire to know. We are convinced that all the remedies so much recommended and so highly praised have proved useless when they were tried; that the post-mortem appearances, nearly always different, did not give us those explanations which might enable us to judge correctly the character of the disease, and thus bring us a step nearer to its cure; that we know of the disease, as yet, only its name, its form, and its terrible effects; that our knowledge with regard to the nature of the virus of the disease will remain, perhaps for a long time to come, imperfect; and that all endeavours will be in vain until the original cause has been discovered and explained. It has been sought to ascribe the disease in dogs—canine madness, not Hydrophobia, for I protest against the use of the latter name, as contrary to science, because I have seen many dogs suffering from canine madness, but no hydrophobious dogs—to many originating causes; but they all have proved obscure, and not sufficient. We all agree thus far that all dogs possess a dormant disposition to favour the development of this independent disease, and that this disposition is nourished by the peculiarities connected with their mode of living, and their irritability and susceptibility. If the assertion is correct that we can in most cases trace the spontaneous origination of the disease to male dogs, and that it is less often by emasculated and female dogs, then a principal originating cause lies at hand, and the inability to satisfy the sexual desires deserves some consideration. We have been informed, from books and other authentical sources, that in the East, where dogs run about without belonging to any one, and are exposed to privation and all noxious influences, canine madness occurs extremely seldom. I do not know if this is the case. In more civilised countries—in Bavaria, for example—the majority of the dogs are males. In my own district 700 dogs were during the current year brought for examination, and amongst them were, according to the lists, only thirty females. If this inability to satisfy the sexual desires is to be considered an originating cause, then the small number of females, in comparison with the large number of males, must be considered an evil, especially where there is no law enforcing the keeping indoors of females during the rutting season; because large numbers of males will assemble around a female, and, although I do not ascribe to the unsatisfied sexual instinct a special capability of producing disease, yet I do consider the irritability produced by their fighting with each other as a matter of importance, because I believe that the bite of a dog which is only irritated is very dangerous. We have had opportunities of seeing the disease appear in its different forms during the nervous stage of the mange or distemper, and in consequence thereof; therefore the proprietors of such dogs can never be sufficiently careful in their observation of them. In Bavaria we are able during many years to acquire experience with regard to canine madness, and its transmission to human beings and animals. Cases of this kind are, unfortunately, not of rare occurrence. Government has done everything in its power for their prevention; periodical visitations have been ordered; the smallest dogs have been ordered to be muzzled; in fact, all means were employed, and all have proved more or less ineffectual. With regard to the police measure of wearing muzzles, I condemn it as utterly useless, because it produces what ought to be reduced. Every rabid dog, without regard to its value, ought to be killed. I know of only one measure which could be enforced for the reduction of the number of cases of canine madness—a measure that has for a long time past been in force in the neighbouring kingdom of Würtemberg, which is far in advance of us in every respect—and that is a reduction in the number of dogs by means of a corresponding taxation. I do not intend to assert that taxation has entirely done away with canine madness in Würtemberg; but a reduction in the number of dogs must of necessity lessen the number of cases of the disease. It may certainly be objected to this, that it would be an interference with individual amusements, that I am an enemy of dogs, and that I have declared war against these animals. But this is not the case. If I take this fondness for dogs into consideration, and think how often at night dogs excluded from their homes run about disturbing healthy and torturing sick people; how during the rutting season female dogs outrage every feeling of public decency and good order; how children are often injured, public places defiled, and their frequenters annoyed: if I consider that dogs may even be kept by people who are in want of the common necessaries of life, and from whom a proper care with regard to the animals cannot be at all expected: if I consider that the dog carries about with him the virus of the most terrible of all diseases, and that no greater misfortune could happen to a human being than to be infected with this most frightful disease in consequence of the bite of a rabid dog—then I am obliged to conclude that a code of regulations with regard to dogs will certainly be a law most welcome to the entire public. According to my opinion, the tax on dogs ought to be divided into two classes; to the first class all dogs which are indispensably necessary for protection or service ought to belong, and to the second all other dogs. And I wish to place especial weight on the proposal that the tax on female dogs in both classes ought to be reduced. While this measure would produce a reduction in the number of dogs, it would be likewise the means of bringing every year hundreds of thousands of florins into the coffers of each State, which might be employed to cover the expenses incurred in the necessary supervision of the execution of the "dog-regulation," and enable the State to render some assistance to agriculture. The conviction has gained ground for some time past that epidemics and contagious diseases might be suppressed on their first appearance, if killing is employed as a means for this purpose. But this is only possible in certain cases. Only, if the State would compensate for undeserved losses, the suppression of epidemics on their first appearance would perhaps not be the only consequence, but their concealment and extension would likewise be prevented. The Bavarian people, who are very fond of dogs, will probably not thank me for this proposition of a taxation (laughter), but prejudice and obstinacy must disappear before an innovation like the introduction of a code of dog-regulations, with a corresponding high taxation. (Applause.)

Dr. *Gerlach.*—At first I must make the remark that canine madness is a specific disease, and, as Professor Hertwig observed, this is an established fact, which renders no further debate on our part necessary. It ought to be further pointed out that this specific disease, called canine madness, is, with regard to the mode of its origin, perfectly unknown to us; we know it only as a contagious disease. This at least we know, that everything which as yet has been considered an originating cause does not produce the disease, and that the circumstances of its appearance, as to time and place (often no single case of it occurs during ten years, and then it suddenly appears epidemically), are greatly in favour of the opinion of its being a purely contagious disease. Then it may frequently occur, in those cases where no infection could be ascertained, that a mistake had been made with regard to the diagnosis. But even if the latter is repudiated, those cases in which no infection can be proved must not be cited as proofs of an original development. This is a mistake which is made frequently, and for this reason we still are unable to free ourselves from the original development theory, although we have no other or better facts for its support. But if scientific disputes arise with regard to the question whether this disease appears spontaneously or not, this much I believe has been ascertained, that it appears in a dangerous form, and as an epidemic, only by means of infection; that protective measures can only be taken against it as a purely contagious disease, and this the more, as experience has proved, that the use of proper means can always extirpate canine madness as an epidemic. With regard to the general measure, it certainly does consist in the reduction of the number of dogs, and in this respect I desire, on philanthropical grounds, a law of draconic severity. The dog is a domestic animal of limited usefulness, but of great and general danger. With regard to canine madness, it has already been determined that the dog spreads it, and therefore is dangerous to human beings and animals. But dogs are commonly dangerous in other respects. Within them are originated the seeds of tæniæ, a disease dangerous to human beings, cattle, and pigs; and wherever a dog occupies such a position in a family that it shares bed and board, there the danger is so great that it may often lead to most serious consequences to human beings. Although echinococcees may be seldom found, they nevertheless occur, in some regions even frequently. You need only look in a northerly direction—if I mistake not, to Norway and Sweden (Cries of "Iceland")—to see how dangerous this disease is, and how entire families sometimes fall a sacrifice to it; so that altogether it becomes a matter of consideration if dogs ought to be kept at all. This is an important question, which we ought to consider. We know, besides, that the dog carries likewise the seeds of giddiness of sheep. If we were to do away with the keeping of dogs, and exterminate foxes, sheep would no longer have this disease. Dogs must therefore be considered domestic animals dangerous in many ways, and we should be justified in establishing measures for the removal of all superfluous dogs. A reduction is necessary, and this reduction should apply generally to those dogs which are most dangerous—those, for example, which are not owned by any one, or in which the proprietor takes no great interest; these are the most dangerous to the community at large with regard to canine madness—but dogs for which a tax is paid create a greater interest, and are treated with greater care, and in their case other measures could be more easily employed. The question, Is the number of dogs to be reduced? must, then, be answered decidedly in the affirmative, for more reasons than one, but principally because the dog is a domestic animal dangerous to the community. On this ground I agree in general with the proposals of the Committee.

Dr. *Ulrich.*—I beg leave to propose that the Assembly, before proceeding to the debate on details, should express its conviction that canine madness, according to all experience, is a specific disease, which developes a contagium that causes the appearance of the same disease in human beings and animals. It is the more necessary that the Assembly should express this conviction, because the communications of a physician residing here have lately been circulated far and wide and are now known to the general public, and because, if more severe measures are to be enforced in future, such an expression of opinion would furnish the different Governments with a complete justification for their introduction.

Ahmed Effendi.—In the East, that is to say in Turkey, the disease known as canine madness exists, and it appears, although very seldom, not alone in dogs in villages and in the country, but likewise in those in large towns.

The *President.*—Those gentlemen who wish to take part in the general debate will please to rise. (Nobody rises.) The first proposition of the Reporter is, That the Assembly should declare whether it considers canine madness a specific disease which may be transmitted to human beings; and if, in consequence, the introduction of a general "dog-regulation" is considered desirable.

The *Reporter.*—I consider it important that the Assembly should adopt a distinct resolution on this subject. From time to time certain assertions make their appearance, and produce an immense sensation amongst the general public; they exert, therefore, great influence, and lead to undesirable consequences. Such assertions may cause contempt for and evasion of existing legal enactments, and may originate very sad results; I believe, therefore, that it is of especial importance, that this Assembly, which possesses the most reliable experiences with regard to this disease, should express its opinion on this subject.

The *President.*—Do gentlemen desire to have this motion put to the vote? All gentlemen in favour of it will please to rise. (The entire Assembly rises.) The motion has been adopted nearly unanimously. I request the Reporter to read the motion as it stands.

The *Reporter.*—I propose "that the Assembly should express its opinion that canine madness (hydrophobia) is in reality a specific independent form of disease, by which a contagium is originated which, when transmitted to human beings by means of a bite, or by infection, is capable of producing the same disease; and that canine madness (hydrophobia) is a different disease from tetanus."

The *President.*—Gentlemen who agree to the motion which has just been read by the Reporter, will please to rise. (The Assembly rises.) It would perhaps be desirable to try the counter-vote, in order to ascertain the majority. Gentlemen who do not believe in the specific character of canine madness, who, in short, are opposed to the motion of the Reporter, will rise. (No one rises.) The motion has been unanimously adopted.

The *President.*—Counsellor of State Halicki wishes to be informed if cases are known and authenticated in which the disease, transmitted from dogs to human beings, has been re-transferred to dogs, and has there produced specific canine madness?

Dr. *Halicki.*—In old works on this subject, it is always stated, that the contagium may be transmitted from human beings to dogs; experiments have likewise been made with the object of transmitting the contagium through the medium of the nerves and muscles.

Dr. *Hertwig.*—With regard to transmission in another manner than by means of the bite only—because this I consider as ascertained—inoculations with pieces of the nerves and muscles, and with blood, have produced, although less frequently, the same effect as inoculations with the saliva from the mouth. With regard to re-inoculation from human beings to animals, I have not obtained any reliable results.

The *President.* — Director Gerlach wishes to propose an amendment.

Dr. *Gerlach.*—My amendment is, that we should decide by vote that canine madness in dogs is to be considered by the sanitary and police authorities of the State, with regard to preventive measures, as a purely contagious disease.

Dr. *Fuchs.*—This is quite out of place here. (Cries of "It never appears spontaneously.")

The *President.*—The weight of the question rests on "sanitary and State police."

Dr. *Jessen.*—Mr. President; I take the liberty to observe, that the proposition of our honoured colleague, correct as it doubtless is, is quite unnecessary. We have resolved that canine madness is a contagious disease, and have therefore asserted that it carries a contagium, and that all measures against it must be employed which would be of any use.

The *President.*—The Assembly is at liberty to refuse the adoption of the motion.

Dr. *Rawitsch.*—Director Gerlach proposes his motion expressly with regard to sanitary police. Nobody will deny that canine madness sometimes originates spontaneously.

Dr. *Gerlach.*—But I wish to have this expressed in words, in order to exert some influence on the authorities of various countries.

Dr. *Zlámal.*—It matters little whether we adopt or reject this motion; it is already contained in the previous resolution, and, according to my opinion, is therefore a repetition. But with regard to the proposal as to measures of police, I have no objection, if we state expressly that all such measures have reference to the *contagious* disease.

Dr. *Gerlach.*—I know from experience that the authorities often hesitate, and in consequence the best measures remain without effect.

Dr. *Ulrich.*—I am not sure that it would be desirable to put this motion to the vote; because the possibility exists of its not being adopted unanimously, or of its being rejected, and this would give to Governments a pretext to oppose the introduction of more severe measures. The Assembly is not in a position to recognise canine madness as a contagious disease, if every member of it does not acknowledge that it developes a contagium.

Dr. *Schauz.*—All older police regulations, as well as those which have been promulgated since the commencement of the present century, are intended to solve the question, how the development of canine madness may be prevented. If we declare that these regulations may be abolished, and that only the extension of the disease by means of infection ought to be opposed, then the motion of Prof. Gerlach would be of great importance. In Southern Germany, canine madness nowhere prevailed during the last twenty years. When it appeared in the course of last year, we were able to follow its extension step by step. But should Governments put in force only those measures which have been enacted formerly, we shall not advance at all; while, if we energetically declare that the disease is developed by means of a contagium, we may hope to arrive at a decision.

The *President.*—We are at present engaged in the discussion of Dr. Gerlach's amendment. I ask, if gentlemen consider it necessary and desirable to put it to the vote. Gentlemen in favour of the motion will please to rise. (23 gentlemen support the motion.)

Dr. *Gerlach.*—Under these circumstances I withdraw my motion.

The *President.*—We now proceed to the debate on the separate points of the proposed regulations concerning dogs. I request the Reporter to read the first paragraph.

The *Reporter* reads the first point of the motion.

The *President.*—Does any one wish to speak on this motion? As no gentleman intends to do so, I shall put it to the vote. Gentlemen who are in favour of the adoption of this resolution will please to rise. (They rise.) The motion is adopted.

The *Reporter* reads the second point of the motion.

The *President.*—Does any one desire to speak upon this subject?

Dr. *Zaugger.*—I beg to propose that the second part of this proposition be omitted; it does not concern us.

The *Reporter.*—In my opinion it is necessary that every dog should be rendered recognizable. (A voice from the centre: "Could it not be done by means of a collar?")

The *President.*—I shall put the first part to the vote. Gentlemen in favour of its adoption will please to rise. (They rise.) It is adopted. I beg that the second part may be read. (The Reporter reads it.) Gentlemen in favour of its adoption will please to rise. (They rise.) Only a minority is in its favour; it must therefore be omitted.

The *Reporter* reads the third paragraph of the proposition.

Dr. *Seifmann.*—With regard to this point, I quite agree with what a previous speaker from Bavaria said, namely, that it would probably be advantageous to reduce the amount of the tax in respect to emasculated dogs, or to exempt them entirely from it. By means of such a change, I believe we would best obtain a reduction in the number of dogs, and prevent the occurrence of those scenes in the streets which outrage public decency.

Dr. *Reich.*—I do not think that the dog-tax could be introduced in the same manner in every country; it must be modified according to existing circumstances. Let us take, for example, Hungary and Transylvania, where the breeding of sheep, horses, and cattle, is carried on to a great extent. Our animals are mostly on meadows, and in forests: how could our drovers and shepherds do without dogs? The shepherds in our country are miserably paid, and if for every dog, as was previously suggested, a tax of four florins should be paid, their whole annual wages would scarcely be sufficient for this purpose, because each flock of sheep renders the keeping of four dogs necessary. It happened in the course of last winter, that near Szathmar, 75 sheep were killed in one night by wolves, and 35 more in the same week. It is the same in summer: in walking some distance out of town into the open country, wolves are heard continually howling. I believe, therefore, that, if a dog-tax is to be introduced, the dogs of shepherds at least ought not to be subjected to it.

The *Reporter.*—In one of the following paragraphs, this is stated distinctly.

Dr. *Fuchs.*—I will only reply to the remark of a previous speaker, that canine madness occurs by means of infection by dogs not emasculated, as well as by those which have been emasculated. I believe, further—and my own observations have convinced me of the fact—that the disease may appear originally in emasculated dogs. I once observed that an emasculated male dog was so jealous of others not emasculated, that he would not permit them to come near, and he ultimately had canine madness. I made a post-mortem examination of the dog, which had been shot—I could not observe it during life—and found the usual appearances of canine madness. I do not think that emasculated dogs ought to be particularly considered, but female dogs ought.

Dr. *Jessen.*—I quite agree with the statement of the previous speaker, but I should like to add that the taxation of dogs ought to be recommended from considerations of humanity.

Dr. *Reynal.*—In France the tax has not to a great degree effected the reduction of the number of dogs nor of the cases of canine madness. I consider that infection is the principal cause of the extension of this disease, and this infection ought to occupy the attention of the sanitary authorities.

Dr. *Zlámal.*—If a dog-tax could effect a reduction in the number of dogs, nothing would be more natural than to introduce this tax at once. I shall not touch at all on the question, whether male, female, or emasculated dogs should be taxed to a greater or lesser amount; for in my opinion they ought to be all taxed alike. With regard to the statement of Professor Seifmann, I beg to remark, that I believe the capability of originating the disease spontaneously is increased by everything which perverts the animal from its normal, natural state; emasculation renders a dog far more unnatural than in its condition as a male. Therefore, if any class were to be taxed to a higher amount, I would select emasculated dogs for this purpose, because they are perverted from their natural condition, and everything which produces this effect predisposes them to the development of diseases. If the introduction of a dog-tax is adopted, I would draw attention to the communication of Professor Fuchs. He said: "In despite of taxation, the number of dogs and the cases of canine madness have increased; not that the taxation might not have been effectual, but simply because it was not correctly executed. Dogs ought therefore to be taxed whenever they are born, or are acquired by other means; then a reduction would take place in their number." If the taxation is adopted, I shall vote for it, if it is added that it ought to commence from the moment of acquisition.

Dr. *Ernes.*—For the information of German members, I beg to state that the taxation of dogs has existed a long time in England, and that it has been lately reduced in amount. Hospitals have likewise been established in London for dogs which have been lost, where they are kept and fed until they are claimed.

Dr. *Hertwig.*—Gentlemen; the ultimate purpose of the introduction of a dog-tax is to reduce the number of unnecessary dogs. If no tax exists, beggars and poor people will keep dogs. But if there is a tax which is really felt, the keeping of dogs by the class of persons just mentioned ceases. Several times to-day philanthropical and other opinions have been stated. It is in keeping with such philanthropical considerations to say now and then: "Yes, you rich people can keep dogs because you are able to pay the tax, but from the poor man you take even the small pleasure that on his return home he might receive from the friendly welcome of his dog. This is an unjust and severe measure." This is something like the manner in which this question is spoken of. If there were nothing else to consider, I should vote against the introduction of a tax on dogs. But the case is different. Whoever keeps a dog, and pays for it more than a nominal tax, must be able to care for it in other respects; he will keep it, for example, at home of an evening, and then the annoyance will cease which to-day has been complained of. Whoever pays a tax for his dog will likewise care about its state of health, and, in case of its being lost, will institute a search for it. The taxed dog is an object of value to its proprietor, and cannot be replaced easily by a cheap one which might be presented to him. This is the reason that the taxation of dogs exerts an influence on the mitigation of canine madness, and on the prevention of its extension. If a dog should escape to-day from a labourer, he will not be able to go in search of it to-morrow, because he has to go to his employment. The dog is gone—why? Nobody knows. But every one who is acquainted with canine madness knows that the desire of dogs to escape is a peculiarity of the disease. The most faithful dogs at a certain period of their sickening by the disease feel a desire to run away. They return perhaps after two or three days, but what have they been doing in the mean time? How many human beings and other dogs have been bitten? All this will occur less frequently when the taxation of dogs exists. I acknowledge the truth of what has been asserted previously, that in despite of the dog-tax the number of dogs has increased; this is a fact. But I ask, How very much greater would the increase have been if no tax had existed? I am therefore in favour of the introduction of a dog-tax.

Dr. *Winkler.*—I would propose, in order to render the expressions contained in this paragraph somewhat stronger, that we say "compulsory" introduction of a taxation on dogs; because many members of this Assembly are aware that in Prussia there exists a dog-tax, but it is left to the discretion of the municipality of each town to enforce it or not. Most of them collect the tax, and use the proceeds for various purposes. It would therefore be better for those who live in the country if the words of the paragraph were altered so as to comprehend a "compulsory" introduction of the dog-tax.

Dr. *De Souza.*—In Portugal taxation on dogs does not exist; and although there are a great many stray dogs, cases of canine madness occur very seldom. In Lisbon, all dogs which have no master are destroyed. I do not think that the introduction of the tax would produce very beneficial results.

Dr. *Zangger.*—I only wish to say a few words with regard to the hesitation which the proposal to tax dogs in cities has occasioned several times to-day. I could prove to you by many examples, that this may not merely be easily accomplished, but that it would, as I believe, effect very beneficial results. In Switzerland, we have already for many years a tax on all dogs throughout the country. Only as accompanying such taxation would the introduction of a severely executed and accurate census become possible. The number of dogs certainly increases; but it ought not to be forgotten, that the cities and villages become larger, and that the number of inhabitants increases likewise. And this increase in the number of dogs renders it now and then necessary to raise the amount of the tax, in order to put a temporary stop to the evil. It has been here stated with regard to Portugal, where, if I am not mistaken, dogs are permitted to run about without proper supervision, that there cases of canine madness occur very seldom; I would beg you to consider that this may likewise accidentally be the case in other places. It is the same as with hailstorms; sometimes no hail is seen in a certain region during a period of twenty or thirty years, and then suddenly frequent storms occur. Since 1851 only a few cases of canine madness appeared in Switzerland, and these happened in the course of last year. But I should not like to deduce from this circumstance that in my country the conditions are not of a nature to render the epizootic appearance of the disease there just as well possible as in Paris. In large towns circumstances contribute to the more frequent transmission of the disease. If you expect beneficial results from the principles which you have expressed here, you will obtain them only if you insist on the introduction of taxation, and if you thus cause a reduction in the number of dogs. And if it is asserted that their number has not been reduced, and if Professor Reynal especially mentions France as an example of this, I would beg you to remember that the amount of the tax is too trifling. What does it matter if a proprietor in those large luxurious cities of France has to pay a few francs for a dog? Do you believe this would exert an influence on the reduction of the number of dogs? I do not think so. If one man ceases to keep a dog, another person, merely for the sake of luxury, may keep one more than usual; the sum is too small to be of any consideration. I would earnestly support the repeatedly expressed opinions that there should be no varieties in the amount of taxation with regard to the different sexes. By such varieties you would declare your belief that certain sexual conditions exert an influence on the development of canine madness; and we are agreed, even though we should believe in spontaneous development of the disease, to refer all police measures only to its contagious development.

Dr. *Fuchs.*—I have already previously stated, that in Baden the taxing of dogs, and even a repeated rise in the amount of the tax, has not effected a decrease in the number of dogs, which has on the contrary increased. I will now communicate what I did not do before, namely, that after each time the tax was raised, a considerable reduction in the number of dogs could be proved; but as soon as the first alarm had passed, as soon as the causes which I mentioned as in my opinion producing the increase in the number of dogs re-commenced to exert their influence, then a gradual increase in the number of dogs likewise re-commenced. Whenever it had been decided to raise the amount of the tax, a corresponding decrease in the number of dogs could be seen in the same year; this, I believe, is a reliable proof that the tax is able to effect this reduction, provided it is put in practice and collected in a business-like and proper manner.

Dr. *Husson* here stated his belief that a dog-tax reduces the number of dogs; he further mentioned that in Belgium canine madness appears very seldom; and declared himself in favour of the introduction of a tax on dogs.

Dr. *Haubner.*—A great deal has been said here about the number of dogs; I suppose this means the absolute number. But it is not correct to speak of the absolute number of dogs; that number must always be referred to the number of men or families. The number of families increases every year very considerably, and nearly every family keeps a dog. If we do not refer the number of dogs to the number of families, we shall never arrive at a correct estimate. My second observation is with regard to the marks or tokens to distinguish the identity of dogs that are taxed, which in other respects I consider indispensably necessary. If cases of canine madness occur, they are generally propagated by dogs belonging to no one, and coming from no one knows where. But if we have marks, we shall soon be able to ascertain whence the dog comes, and whence he has brought the disease.

The *President.*—I believe I may now put this point to the vote. (Cries of "Very good.") I think no gentleman has absolutely opposed it. I request Professor Pillwax to read again the separate parts of this paragraph.

The *Reporter* reads the first part of the third proposition.

Dr. *Gerlach.*—I should wish to add: "As high a taxation as possible."

The *President.*—I shall put it to the vote first in the form in which it has been read. Do gentlemen agree to the principle of the introduction of a tax on dogs in the manner the Committee has proposed? Gentlemen who agree to it will please to rise. (They rise.) The motion is unanimously adopted. Director Gerlach moves the addition of the words "as high as possible;" gentlemen who desire the same will please to rise. (They rise.) It is adopted by a large majority. I now request the Reporter to read the second point.

The *Reporter* reads it.

The *President.*—Some gentlemen have declared that a uniform taxation, without regard to the sex of animals, appears desirable, because otherwise it might be thought that a certain manner of development of canine disease is implied. I shall now put this point to the vote in the same form as proposed by the Committee. Gentlemen who are of opinion that a tax differing in amount with regard to male and female dogs, in accordance with the proposition of the Committee, should be introduced, will please to rise.

Dr. *Jessen.*—Although myself a member of the Committee, I have only learned during the debate, that we must add "alike for emasculated and not-emasculated dogs."

The *President.*—I think the motion might be altered thus:—"The amount of this tax will be the same for all dogs, without regard to sex, and for emasculated dogs likewise." (Cries: "Yes, for all dogs, without exception.")

Dr. *Gerlach.*—For all dogs, without regard to sex and breed.

Dr. *Zlámal.*—There are only two sexes; the neuter would then be excluded. The emasculated dog must be mentioned likewise.

The *President.*—I believe we had better put the motion to the vote in the form proposed by Director Gerlach: "The amount of the tax is to be the same, without regard to the sex and breed of the dogs."

Dr. *Fuchs.*—The breed has nothing at all to do with it. I must request that the motion of the Committee be put to the vote first.

Dr. *Hertwig.*—We should arrive most quickly at the desired end, if we said "without regard to sex."

The *President.*—That is my opinion. I don't think legislative bodies should enter into a discussion about the proper place of emasculated dogs.

The *Reporter.*—"The amount of the tax shall be the same for all dogs, without regard to sex."

The *President.*—The subject has been sufficiently ventilated. The debate on this paragraph is already finished. Gentlemen who agree to the motion in this form will please to rise. (A large majority rises.) It is adopted.

The *Reporter* reads point 3 of the third paragraph.

The *President.*—This point, I think, ought to be divided. The first part of it is, "All dogs ought to be subject to this tax;" the remainder relates to exceptions. I shall put the first part to the vote. Gentlemen who believe that the principle of subjecting all dogs to taxation is right, will please to rise. (A majority rises.) This part is adopted.

The *Reporter* reads the remainder of the third point of the third paragraph, stating that the Committee would not decide whether the tax on dogs employed in certain occupations should be reduced, or whether such dogs should be wholly exempt.

Dr. *Zangger.*—I beg to propose, with regard to the last sentence, instead of "the Committee leaves undecided," that we should say, "depends on local conditions."

The *Reporter.*—We considered this, and meant the decision as to reduction or exemption to depend on circumstances, and on the authorities.

Dr. *Wüst.*—In the Grand Duchy of Hesse we have had for a long time past a law imposing a dog-tax, and also [a census of dogs, which is executed with great regularity. But we have not observed a decrease in the number of dogs in consequence. At the commencement some objections were made to the exemption of shepherds', draught, and other dogs. After a time this was abolished, and experience has proved that an equal tax is a far better measure, because otherwise there arise a great many complaints and defalcations.

Dr. *Gerlach.*—I should like to alter the words thus: "The reduction in the amount of the tax for dogs used for purposes of trade, should it appear necessary, ought to be limited as much as possible."

Dr. *Hertwig.*—The people will pay very unwillingly any tax added to the many others already in existence; and not alone the people, but Governments likewise, are opposed to taxes, if they do not flow entirely into the exchequer of the State. The authorities themselves do not care to impose new taxes, and this is scarcely to be wondered at, because the taxation has reached a pitch which seriously galls the country. If a uniform tax is introduced, we shall not succeed with it. In my own country we were probably the first who had this tax, with the exception of England, and we made the commencement with it before all other States of Europe; but we divided it into categories, according to the purpose. A dog used for purposes of trade is always under a certain amount of supervision. The use of dogs is indispensably necessary to some tradesmen, whose trades are heavily taxed already. It has been stated very correctly that it is necessary to know the circumstances; that shepherds, *e. g.*, ought not to pay the same amount of tax for their dogs which is paid, as a matter of no moment at all, by the rich inhabitant of Vienna, Berlin, or Paris. The several Governments would certainly not adopt our propositions were we to ask for a tax of like amount for all classes of dogs. In proof of this, I may refer to experience. We have had, since I had the honour to be connected with the Veterinary College at Berlin, years when numerous cases of this disease appeared; and we have had again years—nine or ten in succession—when perhaps one rabid dog, or none at all, was seen in the College throughout a whole year; we have, therefore, means of observing, in certain years, from which kind of dogs the disease emanates and is chiefly propagated. Milkmen, for example, in Berlin, carry their milk to their customers by means of cans, which are placed in small waggons, and these waggons are drawn each by one or a couple of dogs. The number of dogs used for this purpose alone is very considerable; it amounts to, perhaps, four or five hundred; yet of these dogs, which are used for purposes of trade, and are therefore exempt from the tax, we have not had one in the Veterinary College since I have been connected with it. Of butchers' dogs, which belong generally to the fiercer class of dogs, we have also had none. In short, I consider dogs which are kept properly with regard to diet by their proprietors, and are carefully looked after, not very dangerous. The dogs which are kept only for amusement or luxury are the most dangerous, and ought to be taxed; they are the most disagreeable part of the whole dog community. (Applause.)

Dr. *Gerlach.*—I believe that my motion—my amendment—is quite in accordance with the principles stated by Professor Hertwig. I must say, I would be very glad if the number of dogs should be decreased by the operation of this tax, and if their employment of drawing milk-waggons should be limited likewise.

Dr. *Fuchs.*—The Committee was of opinion that a reduction in the amount of the tax may be made with regard to dogs used for purposes of trade, to watch-dogs, and to others kept for similar purposes. But we could not define certain classes for all countries with any amount of certainty, and were obliged to leave this to the decision of the separate countries. For this reason we stated in the programme that we left the point undecided. In stating this, we did not intend to say that it is left to the authorities to impose a tax or not; but simply that it depends on the decision of different countries, when local circumstances are duly considered. Thus, in Baden, for the dogs of knife-grinders, shepherds' dogs, or watch-dogs on solitary homesteads, a reduced tax is paid. It may be otherwise in other countries, but this was our meaning. Perhaps it is the construction of the motion that has given rise to so much opposition.

The *President.*—It would have been best if the motion had been brought before us in a distinct form. I believe that if more carefully constructed, the motions of Director Gerlach and of the Committee would nearly correspond; take, for instance, this construction: " A reduction in the amount of the tax, with regard to dogs used for purposes of trade, should it appear necessary in consequence of certain local conditions, or circumstances depending on the country itself, must be limited as much as possible."

Director *Gerlach.*—" A reduction in the amount of the tax on dogs used for purposes of trade and for protection."

The *President.*—Perhaps the Committee will construct the motion for us.

Mr. *Husson* desires that the construction should be in as general terms as possible, in order to leave Governments at liberty to reduce the amount of the tax with regard to dogs used for certain purposes.

The *President.*—Professor Pillwax will read to us the new construction of the motion by the Committee.

The *Reporter.*—" All dogs are subject to this tax. For certain classes of dogs used for the purposes of trade, a reduction in the amount of the tax, or an exemption, may be made; but this reduction, or granting of exemptions, must be limited as much as possible."

The *President.*—Mr. Husson desires a more general construction, not alone for the purposes of trade, but " the Governments are at liberty to grant reductions in the amount of the tax, or exemption from it, in regard to dogs used for certain employments; but this ought to be limited as much as possible." Gentlemen who are in favour of the motion, as I have just read it, will please to rise. (The majority rises.) The motion is adopted. We now proceed to the fourth point.

The *Reporter* reads the fourth point, which is adopted without opposition.

The *Reporter* reads the fifth point, concerning the use of muzzles.

Mr. *Reynal* maintained that muzzles can do nothing to prevent the spread of canine madness. Either they impose a constant constraint on the animal, and the owners, in their fondness, do not apply them; or the muzzle is so made, that it does not keep the dog from biting. Mr. Reynal went on to condemn in principle all muzzles, both ancient and modern, and whether French or German. In his view, the most efficacious means to be employed against the disease were, to kill all dogs which have been bitten by a rabid dog, and to shut up all suspected dogs for seven or eight months, at the expense of their owner.

Dr. *Bleiweis.*—I must likewise speak against the wearing of muzzles. I practise in a country where muzzles had been introduced; but I saw their utter inutility, and, after a dispute of two years' duration with the Government, I succeeded in causing their entire abolition, and without any evil results. It is generally supposed that muzzles prevent furious dogs from biting. I say, decidedly, they do not. All that is believed with regard to the use of muzzles in canine madness is illusion. However humanely constructed, or however freely it may allow a dog to use its tongue for drinking and cleansing purposes, I am unable to see what protection a muzzle offers against the bite of a rabid dog. We know that canine madness does not appear usually, or at least suddenly, in the street. We know that generally several days precede the appearance of the disease, during which the altered behaviour of the dog—for example, its hiding in corners, &c.—indicates the first symptoms. Now, Gentlemen, during this time the dog is at home, and muzzles are not fastened on dogs within the house. What is likely to happen?

As Professor Hertwig has already very correctly observed, the desire to escape is one of the principal symptoms of canine madness. This symptom is so important, that in my country our forefathers always called hydrophobia "the escape-disease"—"stecklina." Now the dog, without a muzzle, escapes, and comes into the street. Did ever any one hear the exclamation, "Look! there runs a mad dog; how fortunate that it carries a muzzle, and cannot bite!" This has never happened, and can never happen. The muzzle is, therefore, decidedly useless, even in canine madness. Will any one believe that muzzles are fastened to other dogs in order that, at a time when the disease is prevalent, the public may not be frightened; that it may see on every dog a muzzle, and be thus satisfied that no danger is at hand? There exists likewise another danger. A dog wearing a muzzle may run about without being attended by any one. It is possible that a rabid dog may attack and bite the other dog, and thus communicate the virus; the dog returns home, and the owners of it know nothing of all that has happened. You will observe that in this case the muzzle affords no protection against the propagation of the disease. The muzzle is, therefore, powerless to prevent the bite of a rabid dog, because no rabid dog wears one in the streets; the muzzle is no security if dogs are permitted to run about at a time when canine madness is prevalent. But there exists one reliable means, and that is, when the muzzle has been abolished, to lead the dog in a cord. If the dog is led in a cord it is always under observation, and what has happened with the muzzled dog cannot happen with the led dog. In consequence, I beg to propose that the fifth proposition of the Committee ought to be altered by substituting for "muzzles" the words "leading on a line."

The *Reporter.*—The leading of dogs with chains, in large towns, would be entirely impracticable. The adoption of this measure would cause great danger to the public. If dogs are led about amongst human beings, how often will children fall over them, or become entangled in the string. Beyond doubt, this will cause hurts and injuries. I therefore am utterly opposed to the proposal.

Dr. *Gerlach.*—It has been generally acknowledged that canine madness is propagated, and assumes an epidemic character, in consequence of infection, and every one knows that the infection takes place by means of the bites of dogs. If we prevent the bites, we prevent the propagation. Now the question arises, is it possible to construct a muzzle which would effectually prevent dogs from biting?—for it is a matter of course that the disease would thus be prevented. Experience has answered this question; it has proved that such muzzles are in use, muzzles with a peculiar contrivance which permits the animal to open its mouth, and project and move the tongue, but prevents it from biting. Such muzzles have actually been constructed. If, then, this kind of muzzle were obtainable, it would effectually prevent the propagation of canine madness. But it is difficult to effect their general introduction, and enforce their use. We have seen, for example, many dogs here, some with muzzles and some without. I do not know if any law exists in this respect. If this should happen to be the case, we would have here in Vienna a proof how difficult it is to introduce and enforce it. The most strict supervision ought to be combined with it. The question is, are we able, by enforcing it, to prevent the disease? I am in favour of limiting the wearing of muzzles; it may perhaps be introduced permanently in large towns, where the danger of infection is of necessity permanent; but it ought to be the exception with regard to the open country, and only to be enforced at times when the disease is prevalent there. There are years when the disease does not appear at all, and then muzzles would be unnecessary. But when canine madness is prevalent, then the alternative ought to be "chained, confined, shot, or muzzled." In this manner the regulation of wearing muzzles could be introduced with hopes of success—with a greater amount of security than chaining and confining. But we must not proceed upon the supposition that dogs are only to wear a muzzle out of doors. The muzzle must also be worn when the animals are within the house. But other facts seem to speak in favour of muzzles, and I mention a few from Berlin. Between the 1st of April, 1852, and the last day of March, 1853, eighty cases of madness in dogs came under the observation of the Veterinary College; in the next year, from April, 1853, to July, 1854, forty-three dogs. On the 20th of July the police authorities ordered the wearing of muzzles, and after this order had been enforced, from August to the end of the year, six dogs became rabid; in the year 1854-1855, one dog; in 1855-1856, one dog. Since 1856, no case has occurred. It is possible, of course, that accident had something to do with this.

Dr. *Hertwig.*—During a period of nine years, Dr. Gerlach tells us, there was not a single case of canine madness in Berlin; and this period corresponds exactly with the introduction of muzzles. But it would be erroneous to believe that this result was owing solely to the introduction of muzzles. We had previously periods of exemption of the same duration; and I believe it has been the case in every country, that during a number of years few or no cases of canine madness have occurred. We have, encouraged by these observations, from time to time advocated the use of muzzles, and communicated the results in every direction; and the authorities in foreign countries have been induced to order the use of muzzles. But mark what follows: Two years ago, in May, 1863, two rabid dogs appeared in the country. These dogs having reached the city, several other cases occurred there also. During last year, and during the present down to this time, there occurred, if I mistake not, between twenty and thirty cases of canine madness, in spite of the fact that all dogs in the town, without exception, were wearing muzzles permanently. In the course of last autumn, within a period of eight weeks, three children died of hydrophobia, in consequence of the bites of dogs; and this in spite of muzzles! Some people might naturally conclude from this that muzzles are entirely useless. But every remedy and every precaution has two sides, and there exists none in the world which can give security against misfortunes in all cases—especially with regard to canine madness in animals which continually run about and accompany us, and which until now, in town as well as in country, have existed under the most different police regulations. If a measure is to be expected to prove useful in this respect, that can only be the case when its introduction is general. In certain towns of Prussia dogs wear muzzles; in others they do not; and they never wear muzzles in the country. The dog-tax is, in the same manner, of irregular application. These measures—the orders for muzzling, and the levying of the dog-tax—depend on the decisions and directions of the local authorities. They do not yet exist as general measures for the whole country; and it is to be hoped that our resolutions may have some effect in bringing about their absolute and universal enactment. Although time is passing rapidly, I will make a short comparison with some other objects. Large towns are greatly annoyed by different species of vermin, and especially by rats and mice. Although the individual house-proprietor frees his house from vermin, it will not be long before they again enter his premises, coming from the houses of his neighbours on either side. If any regulation on this score is to be of effectual and permanent benefit, it must be adopted generally throughout the whole town. This is the case also with respect to dogs. With particular regard to muzzles, I must, notwithstanding all that has been stated here, speak a word in their favour. A well-constructed muzzle will protect against a bite as long as it is worn by the dog. But it must be well constructed, fit well, and be securely fastened. A bad muzzle is no protection. I have observed a case where an ill-tempered and momentarily irritated dog, although wearing a muzzle, bit off a joint of a man's thumb. This, of course, was due to a bad muzzle; but our decision ought to have reference only to well-constructed muzzles, and it must be left to the care of the authorities to find out where and how those well-constructed muzzles may be obtained. Secondly, the muzzle protects against bites in general. Many people are annually bitten by dogs which are not rabid; but how is any person to know whether he has been bitten by a rabid or not-rabid dog? Therefore the muzzle is a protection to the public against the bites of dogs which are not rabid. But if one hundred persons in one town are annually bitten by not-rabid dogs without muzzles, and if the dogs, wearing muzzles, bit only twenty or thirty, there would be so many per cent. less of bitten people, and so many per cent. less of people who have not been dangerously alarmed. For canine madness, with regard to the bite in human beings, causes not only, ultimately, hydrophobia and death, but an immediate psychological impression of extreme intensity is combined with it. The bitten person who is not certain of the condition of the dog that has bitten him, must needs be, in proportion to his mental acquirements and the state of his nerves, more or less frightened and tortured. If we, therefore, diminish the bites of dogs, we likewise diminish the apprehension and fear of the public; and this is a great gain. It is often said that a muzzle annoys the dog; but if it does so, it is only for a few days. I have two dogs, which, as Professor Fuchs has already narrated, were brought into my house against my will. When the muzzle was first fastened, what a scratching and brushing and whining there was! but now that they are used to wearing it, I need only show them the muzzle and they come running, to offer the head to have it fastened. If I say to the dog, "Search for your muzzle," it will seek it until it is found, bring it, and remain quiet until it is fastened. With regard to the respiration, there are muzzles which permit the dog to open the mouth to a certain width, to put out the tongue, and to drink, so that the molestation is not so very great. I do not intend to enter more deeply into the subject, but I recommend the use of good and secure muzzles. (Applause.)

Dr. *Zlámal.*—With regard to the use of muzzles, I quite agree with the first part of the proposition of the Committee, that muzzles ought to be done away with. The previous speakers, even several of those who spoke in favour of their retention, have proved that they are useless. I wish to state, therefore, only that I am in favour of their being dispensed with. But the first point of the proposition says that they ought to be employed when canine madness is prevalent. Dr. Bleiweis, however, has shown that those dogs which wear muzzles are the harmless ones, and that the rabid dogs, which propagate the disease, wear none, at least in the street. If it is intended to adopt a measure to prevent all biting, and in consequence any extension of the contagion, we must find another and more thorough-going remedy. As soon as it has been proved that canine madness has appeared, no dog should be suffered to appear in the street, and every one should be obliged to take care of his dogs. If allowed to appear, with or without muzzles, in the street, dogs would bite, in spite of the best-constructed muzzles. The attacked dog will bite in return, and although the muzzle, made of wire, may remain good for a day, the dog will contrive to damage it in such a manner against the walls and the ground, as to be able to resist with the teeth the attacks of his comrades. The best constructed muzzle would only continue to be of any service for a very few days. I am therefore inclined to the opinion that, instead of wearing muzzles, the appearance of dogs in the street during the prevalence of canine madness should be entirely prohibited. This would diminish the disease, and, besides, enable us to ascertain whence it comes.

Dr. *Jessen.*—Gentlemen, it has been proposed to lead dogs with a cord, instead of fastening muzzles on their head, and by this means to prevent the disease. I have often seen dogs led about in this manner. I have seen, for example, weak children leading very large dogs; the dogs often tore the line and threw the child down, and their biting was by no means prevented. In other cases, even where the dogs were not led by children, I have seen the same thing occur. I therefore subscribe to the opinion expressed by Professor Pillwax, that the leading of dogs in cords is by no means so efficacious as the wearing of muzzles; at least it offers no protection against the bite, and the propagation of rabies. I cannot express an opinion with regard to muzzles, as they are not in use in my country.

Professor *Fuchs.*—The reasons stated by Professor Bleiweis deserve careful consideration, but the arguments in favour of muzzles which have been employed, especially by Professor Hertwig, ought likewise not to be forgotten. I must remark here that the Committee tried to ascertain if muzzles are really of so much utility as is generally supposed. With regard to this, opinions were divided; hence the limited terms of the motion. But I will state one reason which will somewhat weaken the arguments of Professor Bleiweis, namely, that during the prevalence of rabies the muzzle is usually removed from dogs in the house, and therefore the animal may happen to escape without a muzzle, and thus the utility which has been ascribed to the general wearing of muzzles does not exist. But of course any dog, which during the prevalence of rabies is seen without a muzzle, is considered as suspicious, and in consequence will be promptly secured.

Mr. *Sondermann.*—The purpose of our deliberation at present is to determine what are the means capable of preventing the appearance of rabies. To obtain this end, there exist no means efficacious under all circumstances: for they must all operate in an indirect manner. A dog-tax would be the first and principal among them. The wearing of muzzles is likewise supposed to be an efficacious precaution, but that has not been sufficiently proved. I speak from experience, and am borne out by a great number of opinions which have been collected by the Society for the Protection of Animals in Munich, as the centre of all other Societies of the same kind in Bavaria. All these are opposed to muzzles. Statistical notes likewise led me to this conclusion. Muzzles are intended as a protection against the bite generally. At the time when muzzles were introduced into Bavaria, the number of dogs decreased considerably; after the repeal of the ordinance the number again increased. The number of cases of injury to human beings and animals remained during both periods the same, and during the first period it was observed that dogs wearing muzzles had often inflicted bites. There does not exist a perfectly well-constructed muzzle. We have procured specimens of every description, but none was perfect. No dog likes to wear a muzzle: a few get used to it, but only a few, and never those which seldom come into the street. Of course, the dog which very frequently wears a muzzle may get used to it in time. Dogs used for certain pursuits cannot, during the time they are employed, wear a muzzle at all; shepherds' dogs and dogs used for the chase would be of no use if they were muzzled. My conviction, therefore, induces me to express myself decidedly opposed to the employment of muzzles.

Professor *Hertwig.*—The objections which have been stated to the use of muzzles cannot, when they are analysed, influence our decision. Societies for the protection of animals are guided by other motives than ours. The sanitary police must, if necessary, even kill; but Societies for the protection of animals have other ends in view. With regard to the opinion that dogs wearing muzzles may bite, I know that this happens, but only when the muzzles are badly constructed. To the assertion that there is no sort of muzzle which could prevent biting, I must answer that muzzles may do so if they are well constructed and are worn. In Paris, I believe, it was customary—and perhaps is still—for the police to place poisoned pieces of meat and sausage in the streets, and by this means to kill superfluous dogs. Whoever does not wish his dog to smell at or eat anything of this kind, must prevent it by means of a muzzle; and this muzzle will likewise protect against biting. During my stay in Paris, I saw a muzzle made of wire-net, and such a muzzle will certainly prevent the dog from biting, as long as it is worn. With regard to the objection that dogs do not become used to muzzles, unless when they wear them permanently, I have only to answer that we desire to urge that muzzles should be worn as frequently as possible; this would be far more beneficial. The period of a few years over which the observations of the previous speaker extended is by no means sufficient to warrant a decision. I mentioned previously that during nine years we had not a case of rabies in Berlin and its neighbourhood; but during the last three years the disease has passed over the whole extent of Germany. Wherever it has made its appearance, it has always remained stationary until energetic means were employed to extirpate it. As I said before, there are not sufficient grounds for deciding finally on the utility or inutility of muzzles in preventing the spread of rabies. (Cries: "Divide.")

Mr. *Stichel.*—If police measures are strictly executed, no dog without a muzzle will be suffered to appear in the street. Every dog is led once or twice a day into the street, or runs out of its own accord; and one or the other member of the household will of course put on the muzzle. Thus any change in the behaviour of the animal will easily be noticed, and may suggest the question—Is the dog ill? Whoever is familiar with the dog, will at once notice if its behaviour differs from what it was previously, and this is most frequently observed when the muzzle is being fastened. These reasons incline me in favour of muzzles. (Applause.)

Mr. *Weber.*—In my country, about a year and a-half or two years ago, muzzles were introduced; but they were considered proper subjects for derision and fun, and our humorous publications attacked and ridiculed their employment. I quite agree with the opinions expressed by Professor Bleiweis, and go even a step further, in declaring that I consider muzzles a torture to animals. I have seen several cases in which I can prove that a desire to bite was created in dogs by means of muzzles—even well-constructed muzzles. We received in Würzburg, from Berlin and other large cities, the most different patterns. I hoped that at the meeting of our Congress, well-constructed muzzles would be exhibited to us: but I have been disappointed. I, myself, have been bitten by a dog which, in the general opinion, wore a well-constructed muzzle. I was not bitten in the extended finger, but in the palm of the hand. This I consider sufficient proof that even a well-constructed muzzle does not prevent biting—or, if it does, must do so by being fashioned in such a manner as to obstruct free respiration. But if we express the desire that muzzles should be introduced, it will likewise be necessary to propose the appointment of a commission in every place for the purpose of supervising all dogs, and examining daily if all muzzles are rightly constructed, and if they are not broken or defective in other respects, or are not worn merely in ridicule. (Applause.)

Mr. *Fürstenberg.*—In my country, we have not been able, in spite of all possible ordinances to this effect—such as chaining up of dogs, &c.—to overcome rabies, which was prevalent in some districts for two, three, four, or five years. The introduction of muzzles was alone sufficient to produce the extirpation of the disease, and it is now an established rule in our country that, where the disease appears, all dogs which come into the streets must be provided with muzzles. Their use is not enforced on those dogs which are kept in-doors. In the small island of Usedom, which is nearly cut off from all intercourse, rabies was prevalent during several years; and only by ordering that all dogs which came into the streets or highways should be provided with muzzles, has it been possible to extirpate the disease.

Mr. *Schell.*—The Committee, in its motion, has practically recommended the wearing of muzzles as the only police measure against rabies; though it certainly has likewise elsewhere urged that animals which have been bitten by rabid dogs, or by dogs suspected of rabies, must be killed. We have heard, however, that the wearing of muzzles is by no means an absolutely certain precaution. I do not intend to dispute that muzzles may be, perhaps in many cases, of use. On the grounds stated by Professor Hertwig, their use would be very beneficial. If in large towns all dogs were obliged permanently to wear muzzles, rabies would be prevented; while the shock to the nervous system of persons who are bitten by healthy dogs, though they do not know it, will likewise be prevented. I do not think that the wearing of well-constructed muzzles is a cause of torture to the animals. But I cannot subscribe to the opinion that the wearing of muzzles should be considered and declared by the present Congress the sole police measure required against rabies; and that the wearing of muzzles should replace all those police regulations hitherto existing in various States. (Dr. *Fuchs:* "This is not the case here.") We, in Prussia, consider it the foremost necessity, in case the disease appears in a town or district, that the dogs should be chained up, and only in exceptional cases led by a cord. When canine madness is prevalent, dogs from those parts ought not to be permitted to run about freely and without proper supervision. This cannot be prevented by the wearing of muzzles alone. In Cologne, for example, where the use of muzzles has been enforced for several years, cases of rabies nevertheless appear: and how do they appear? Either dogs belonging to the town take the disease and make their escape from the house when the muzzle is removed; or the disease is introduced by strange dogs coming from the environs, and allowed to run freely about the town at the time when the disease is prevalent, and mix without hindrance with dogs wearing muzzles. If in this manner rabid strange dogs come into the town, an explanation of the propagation of the disease is fully given; for it is not known whether the dogs have been infected or bitten, or by which of the new comers, and other measures are then altogether impossible. I must therefore state that, according to my personal opinion, this measure exclusively does not seem to be to the purpose; and it appears to me that the hitherto existing measure of chaining up dogs or keeping them in-doors cannot be abolished, unless the wearing of muzzles has been introduced everywhere in town and country, and until muzzles have been constructed in such a manner that they give protection in all cases and under all circumstances.

The *Vice-President.*—I will only mention that, during last year, cases of rabies have increased in number in Würtemberg; during the first months of the year slowly, then every month more and more rapidly, until the use of muzzles was enforced, not only in the towns, but throughout the whole country; and since then not a single case has occurred. (Applause.)

The *President*.—I believe the time has now arrived for putting these motions to the vote, provided the Reporter does not wish to speak in reply. During the debate several motions have been proposed. The Committee does not propose to enforce the wearing of muzzles under ordinary circumstances, but only when cases of rabies have occurred. This, in my opinion, is the sense of the motion.

The *Reporter*.—The wording of the motion suffices to indicate that under ordinary circumstances the wearing of muzzles is not necessary.

Professor *Fuchs*.—Or may be left to discretion.

The *Reporter* reads the second part.

Director *Gerlach*.—I would propose a small addition to the first part, namely, the words "at least."

Professor *Fuchs*.—Instead of "only."

The *President*.—Before proceeding to the second part we must first decide on the principle. The Committee is of opinion that the general use of muzzles is not necessary; this, in my opinion, is the first point. The motion must be divided into two parts. It is stated: "The wearing of muzzles is only indispensable where cases of rabies have occurred;" but it ought to have been said: "The wearing of muzzles, as a rule, is not required; it is only then indispensable," and so on.

The *Reporter*.—The wearing of muzzles, under ordinary circumstances, is not required.

Professor *Hertwig*.—At times when rabies is not prevalent.

Professor *Zlámal*.—Of course! For this purpose the supplementary sentence has been added.

The *President*.—Is it agreed that the first part of the first point of the fifth paragraph shall be constructed thus: "At times when it is not known that rabies is prevalent, or when cases of this disease have not occurred, the wearing of muzzles as a police measure is, as a rule, not required"? (Cries of "Divide.") I shall put the motion of the Committee first to the vote.

The *Reporter.*—" At times when no cases of rabies have occurred, the wearing of muzzles, as a police measure, is, as a rule, not required."

Professor *Haubner.*—Mr. President; I would propose: " The wearing of muzzles, as a permanent measure, is not required." (Cries of " Yes, that is the best.")

The *President.*—The word " permanent " is scarcely a fitting expression. Gentlemen who are in favour of the motion of the Committee, that is, who are of opinion that the wearing of muzzles, as a rule, is not necessary, will please to rise. (They rise.) The motion is adopted by a great majority; therefore the wearing of muzzles is not required at times when rabies is not prevalent. Now we proceed to the second part of the Committee's motion.

The *Reporter* (reads).—" The introduction of muzzles for dogs the Committee considers indispensable only in those districts where cases of rabies have occurred."

Professor *Fuchs.*—" At least."

The *President.*—Let me remark that this is the motion of the Committee. But several other motions have been proposed, especially " that dogs must be kept in-doors in those districts where rabies appears." Mr. Schell expressed himself in favour of this motion.

The *President.*—I believe gentlemen will agree that, at times when rabies is prevalent, the wearing of muzzles is demanded as indispensably necessary; this is the sense of the Committee's motion. Gentlemen in favour of this motion will please to rise. (They rise.) It is adopted by a majority. I shall now propose the supplementary motion, " But this does not exclude the keeping of dogs in-doors." I believe, Mr. Schell, this is your motion?

Mr. *Schell.*—It should rather have been constructed thus: " But this measure does not exclude other measures, for example, the keeping of dogs in-doors." This is of importance, because otherwise this measure might be considered, as far as the principle is concerned, to have been recommended as the only right and necessary one.

Professor *Jessen.*—I believe it is stated in the next paragraph that this ought not to be the case.

The *President.*—Probably objections may be raised against it; at present, only principles ought to be expressed. The execution in detail of the measure is to be left to the authorities.

The *Reporter.*—That has been stated and expressed already in the foregoing part of the proposition.

The *President* (reads).—"The period during which muzzles must be worn is to be decided by each separate case, with regard to the particular circumstances, by the authorities and competent veterinarians." Gentlemen who agree to this will please to rise. (They rise.) It is adopted.

The *Reporter* reads the sixth proposition, which is adopted.

The *Reporter* reads the seventh of the propositions. (Cries of "Divide.")

Professor *Rueff.*—It is stated here that rabid dogs, and those bitten by them, are to be killed under any circumstances. I request attention to the fact, that persons have been bitten by dogs which had themselves been bitten by others afflicted with the rabies. These persons have felt the greatest apprehension and terror, because they were ignorant whether the disease had been developed or not as the result of the bite which had been sustained by the dog.

The *Reporter* (reads).—"Dogs suspected of rabies are to be kept in secure confinement, and under careful examination, until their state of health has been ascertained."

The *President.*—The further discussion of the subject may perhaps be simplified if the expression is altered to: "Dogs ascertained to be rabid but which have not bitten a human being."

Dr. *Müller.*—I agree to the motion. In Austria a law is in force which prohibits the killing of rabid dogs. They must be kept confined.

Professor *Zlámal.*—I understand the question in the same sense as the previous speaker. It has not been well expressed here. Dogs which are ascertained to be rabid must be killed. For what purpose are they to be kept in confinement, unless perhaps for experiments, or to instruct students? As a rule, therefore, they should be killed. Many a person is bitten by a dog which has not been proved to be rabid. Nothing will quiet such an injured person as much as if he is told: See, the dog is healthy; be without fear! This fear and terror do not last merely five or six days; I know people in Hungary who, during the last twelve or thirteen years, have not slept well, nor eaten once with appetite, because they had once been bitten by dogs which were not examined, but which were killed.

Mr. *Beer.*—I believe I ought to mention that the time during, which dogs are to be kept under observation ought likewise to be considered, as to its duration for those that have been bitten, and those which have only been in contact. Experience teaches that the period of observation is far too short for bitten dogs—that rabies has appeared after six weeks in dogs which had only been in contact with others. It is very difficult to decide on a maximum of time.

Professor *Fuchs.*—I am constrained to dispute the justice of the reproach which seems to be directed against the Committee for not having considered how a dog which is only suspected of rabies should be brought under observation. The probability of the occurrence of such cases has been very seriously considered. If this had not been the case, a certain reproach would have been justified. Every bitten dog may be attacked by rabies, but it can only be considered suspicious, when some symptoms of rabies (not the fully developed disease) appear. And to this the supplementary sentence chiefly refers, which states that a dog suspected of rabies shall be observed.

The *Reporter.*—I beg to propose, in the hope that it will assist us in coming more quickly to an agreement, the following construction: "Rabid dogs are to be killed under all circumstances; but those which have been bitten by or have been in contact with them, are only to be killed when they have not bitten a human being." If a person has been bitten by them, they are to be kept under observation until their state of health has been ascertained." (Cries of assent, and calls for the close of the debate.)

Professor *Ulrich.*—I would vote in favour of retaining the motion of the Committee as originally read. I beg to draw attention to the fact, that if a dog is bitten by a really rabid animal, the measures which must be immediately employed are these—to kill all dogs that have been bitten, and those which have been in contact with them. But I ask: Is such a dog to be kept under observation? and how long? For six or nine weeks, as is usually the case, and as accords with the regulation to this effect? It is possible that during the period of observation rabies may appear; but it is just as likely that it may not. It may, as experience proves, appear later. The dog must therefore be kept many months under observation. A person bitten by a dog of this description will beyond doubt ask if he has been bitten by a rabid dog; and may be satisfied at once by being told that the dog has not been rabid, and therefore cannot have caused a dangerous infection.

Professor *Rueff.*—Noboby has proposed that all dogs which have been bitten should be kept under observation; it has only been proposed to watch a bitten dog by which a human being has been bitten. Only this motion has been submitted; and therefore the supplementary motion of the Reporter of the Committee would be in its proper place here. It corresponds likewise entirely with the orders the veterinary police have enforced in Würtemburg, and which have proved efficacious.

Professor *Rawitsch.*—I only wish to mention that it would be necessary to determine, at least approximately, the time during which a dog is to be kept under surveillance. This, with regard to the veterinary police, is important, that they may state whether a dog has been rabid or not. With this is connected the question concerning the incubation-period of rabies. This has not been correctly set down; and I should like to hear something more specific about it.

The *Reporter.*—With regard to the expressions of Professor Rawitsch, I beg to remark that, if a dog is bitten by a rabid dog, an observation of only a few days' duration is necessary to qualify any one to say whether the animal is healthy or suspected. If the appearances of perfect health continue during two or three days, it may be supposed with certainty that the animal was healthy; and healthy animals cannot infect human beings.

The *Reporter.*—"Rabid dogs must be killed under all circumstances; those which have been bitten, or have been in contact with them, only when they have not bitten a human being:

but if a human being has been bitten by them, they are to be killed only after their state of health shall have been ascertained."

Professor *Hertwig.*—There seems to be a "something" in the Committee's expressions which induces members to hold other opinions. The case stands thus: A dog is bitten, the bitten dog —bitten by a rabid one—is always suspected, and rabies may any day appear. We have seen that in Berlin a dog was discharged after being under observation during twelve weeks, and in the thirteenth week rabies made its appearance. We are, therefore, of opinion, that if from special reasons, and exceptionally, a dog which has been bitten by a rabid dog is left alive, and kept under observation, the period during which it is to be watched must be of at least twelve weeks' duration. No one, before the expiration of this period, can say what may happen to this dog. But the case is different—and here, I believe, lies the error—if a dog, the state of whose health is not known, has bitten human beings or dogs. If such a dog is brought under observation—and this happens sometimes—I always give the opinion at once, for the sake of the poor bitten persons, that the dog is not rabid.

The *Reporter.*—"Rabid dogs must be killed under all circumstances; those which have been bitten, or have been in contact with them, are only to be killed—" This could be altered to:—"are to be killed immediately, if no human being has been bitten by them; but if they have bitten a person, they must not be killed until their state of health has been ascertained."

The *President* puts the motion to the vote, and it is adopted by a large majority.

The *Reporter* reads the second point of the paragraph, which is adopted, as are also the third, fourth, and fifth points.

The *Reporter* then reads the sixth point.

Director *Zangger.*—I propose that this point be omitted entirely.

The *Reporter.*—The Committee was not quite agreed as to the visitation of dogs. Some considered it necessary; others did not. Of course, it cannot influence the discovery of cases of rabies in a direct manner; the visitation may have been performed to-day, and the dog found healthy; and yet two or three days after rabies may appear. Therefore the motion has not been proposed unanimously by the Committee.

The *President.*—Does the Assembly adopt the proposal of the Committee? Gentlemen who intend to do so will please to rise. (It is rejected by a majority.)

The *Reporter.*—I beg to make a single observation. The visitation of dogs, if it is repeated several times during the year, cannot fail to prove of some benefit. A knowledge of the general state of health of dogs may be thereby acquired; and dogs which are vicious, or suffering from loathsome or contagious diseases, may become known. In cases of this kind the destruction of the animals may be proposed; and this brings about in a direct manner a decrease in the number of dogs, and in an indirect manner a decrease in the number of cases of rabies. Then these visitations have the further advantage, that the proprietors, as soon as they know the visitation is about to take place, watch their dogs more carefully and treat them better; and thus it becomes possible sooner to detect the first indications of disease, and report them. These are the reasons which induced some members to express themselves in favour of the periodical visitation of dogs.

The *President.*—I beg that the next point may be read.

The *Reporter* reads the eighth point of the paragraph.

Professor *Hertwig.*—I have always found, from the many opportunities which I have had of examining cases of rabies, that the public still adheres, with regard to the symptoms of the disease, to the old superstitious and erroneous traditions. Certain indications are always looked for—froth at the mouth, drooping of the tail, trembling in the loins, dread of water, &c.—and the real symptoms are entirely unknown. I therefore consider the instruction of the people on the part of the authorities a necessity; and the fulfilment of this demand for instruction is of great importance. It is essential that instruction of this kind should be given to each proprietor when he reports his dog for payment of the dog-tax. I must add that the authorities ought to make public at once every case of rabies which comes to their knowledge. (Applause.)

Professor *Reynal* also speaks in favour of the proposal of the Committee.

The *President.*—There being no expression of an opposite opinion, it may be supposed that the Assembly is willing to adopt the motion of the Committee. After what has been said, it seems, however, better to substitute "necessary" in place of "desirable." (Cries of assent.) If gentlemen desire the adoption of this motion, they will please to rise. (It is adopted.) With this we have finished the proposals of the Committee; and I therefore ask if any gentleman wishes to add anything to them.

Professor *Hertwig.*—I have suggested that the opinion should be added to the proposition, "that every case of rabies should be made public."

Professor *Zlámal.*—This provision we have already in our laws and ordinances.

Professor *Hertwig.*—Not everywhere.

The *Reporter.*—In the present state of the press, it is to be expected that every case of rabies will be known very quickly by the public. It is not necessary that the authorities should also declare that "a case of rabies has occurred." If one occurs to-day, it may be read of in all the newspapers, and to-morrow it is known far and wide. But if the authorities announce every case officially, it will create a panic.

Professor *Hertwig.*—That is just what I desire, in order to put people on their guard at such a time.

Professor *Zlámal.*—Every physician, surgeon, and veterinarian, whether holding an appointment or not, knows that he has to report cases of this kind at once and immediately, to the nearest authorities.

The *President.*—Are gentlemen of opinion that, constructing these motions according to their general principles, the subject is exhausted? Gentlemen who hold this opinion will please to rise. (They rise.) The discussion of the third part of the programme is finished. The Congress is adjourned till to-morrow.

FIFTH MEETING, 25TH AUGUST, 1865.

President, Dr. RÖLL; *Secretaries,* Drs. FORSTER and PROBSTMAYR.

The *President.*—The meeting is opened. I will briefly mention some communications received since yesterday. Mr. Ernes has submitted a bottle of carbolic acid, a substance which may be used as a disinfectant, for cauterizing, as a wash, and as an antiseptic. He states that a pound of it costs in England about three shillings sterling; and he is willing to give to gentlemen who desire it every further information. A tracheotome has been exhibited by Mr. Spooner, the construction of which will likewise be explained by Mr. Ernes. It may be briefly described as follows:—for the excision of a circular piece of the cartilage of the trachea, after the skin has been cut, an instrument is used consisting of a fixed point which is inserted between two rings of the trachea, and a blade which is connected with the point by hinges, and is thus moveable. By turning the latter round in a circle, a part of the cartilage of the trachea is cut out. The canula is about half an inch in diameter; its front part, which is introduced into the trachea, has two flap-like continuations, which move on hinges; these are separated from each other by pressing a spring at the back of the canula, and thus, after the instrument has been inserted into the trachea, the continuations lie close to the interior side, and cannot fall out. On the surface, nearly extending to the back part, are matrices, on which an oval plate, provided with two incisions for the fastening of bands, moves back and forwards, and may be so arranged as to correspond to the thickness of the skin, or a possible swelling, in order to secure the position of the canula. Mr. Spooner has been kind enough to present this instrument to our Veterinary Institute here. The Secretary will now read the minutes of yesterday's meeting.

Dr. *Probstmayr* reads the minutes.

The *President.*—Does any one object to the accuracy of the minutes? As no one objects, I declare them adopted. According to the desire of many gentlemen, the selection of the time and place of meeting of the next Congress is to be decided before we proceed to the consideration of the fourth subject of the programme. Gentlemen who agree to this alteration of the order of the day will please to rise. (The alteration is unanimously adopted.)

Professor *Haubner.*—Our Congress has adopted the designation of "International," and has already twice met in Germany. If it intends really to deserve the title of international, it must sometime meet somewhere else. Many voices amongst us may be raised in opposition to this, and many may deem it desirable and necessary that we meet once more in Germany, to become more consolidated, and for other reasons, previous to our migration to England, France, or Italy. With regard to these opinions, which will probably be expressed in opposition, I beg leave, at once, to propose a compromise, by mentioning Switzerland—because it is a country situated in the centre, between France, Italy, and Germany, in which the three languages are spoken, and which is much frequented by Englishmen. It is easily accessible by railroad and steamboat; and I believe this proposition will be generally approved. If Switzerland is selected, there can be no doubt that Zürich will be the place where we ought to assemble; because, as far as I know, there is only one delegate from either Veterinary Colleges of Switzerland, namely from Zürich, here, and after a preliminary consultation with him, I have no doubt in saying that Zürich will gladly welcome us within its hospitable walls. I think, further, that we ought to adhere to the previously established rule, and meet every two years.

Mr. *von Undritz.*—Dr. Haubner's proposal to meet next at Zürich cannot be considered international. If we really intend to be international, we ought to select a place which is situated near to every nation, and as such I believe I may designate Dresden, which is situated geographically in the centre of Europe. I, as a Russian, propose, therefore, that our next Congress shall not be held out of Germany; let us first gain greater stability and more vitality. Afterwards, we may select a town in Russia, and I believe St. Petersburg is a city where we may assemble once, as well as Paris and London. If we intend to make it possible for every one of us who may not be wealthy to participate in such an assembly, let us select Dresden. I beg also to remind you, that if we assemble in Zürich, there is only one man, Dr. Zangger, who would be obliged to undertake all the preliminary arrangements of the next Congress; and to throw the entire burden on the shoulders of one man would be unjust. We must select a town with a Veterinary College, where three members at least may form the Committee; we have worthy representatives in Dresden; let us therefore select that city.

Professor *Reynal* says that he would propose Paris, did he not fear that the international exhibition which is to take place in 1867 might distract the members too much from their original purpose. He agrees to the proposal of Dr. Haubner, and is in favour of Zürich, especially because Switzerland is situated in the heart of Europe, and three languages are spoken there.

Director *Gerlach* suggests the selection of Berlin; and states his opinion that the Congress should be held only once in three years.

The *President* puts the three motions, for the selection of Zürich, Dresden, and Berlin, to the vote; and calls on the Secretary to read the result.

Professor *Probstmayr.*—In favour of Zürich there are 89 votes; for Dresden, 32 votes; for Berlin, 12 votes. Twenty-four members were absent during the voting.

The *President.*—Zürich has been selected. Now the other part of the question has to be considered, whether the Congress shall assemble every two or every three years. (Cries of "Two.") Gentlemen who desire that the Congress shall meet every two years will please to rise. (They rise.) Two years has been decided on by a large majority. I now take the liberty to ask Director Zangger, on behalf of the Committee, if he will be kind enough to undertake the preliminary steps for the meeting of the Congress in 1867, at Zürich, and to cause the Federal Government to transmit in good time invitations and other communications to the various Governments of Europe.

Director *Zangger.*—Gentlemen; I thank you for the resolution which you have just passed that the next International Congress of Veterinary Surgeons shall assemble in Switzerland, and at Zürich. I thank you on behalf of the veterinary surgeons of Switzerland, and do not think I go too far if I do so likewise on behalf of the authorities and the people. I guarantee to you a cordial reception by our colleagues, by the authorities, and by the townsfolk. We shall endeavour to execute the task you have entrusted to us to the best of our ability. You must not conclude, because the Congresses at Hamburg and Vienna have only been visited by a few members from Switzerland, that we have not more and better men at home, who will not hesitate to promote our objects by energy and knowledge. Every one is not able to undertake long journeys, because he has not the pecuniary means; and if a small country like Switzerland is represented at an International Congress by only one person, the proportion is the same as if a country with ten times the number of inhabitants were represented by ten persons. I believe that those gentlemen who have founded and conducted the Congresses at Hamburg and Vienna will not deny us their assistance and support. We shall acquaint the Swiss Federal Government and the local authorities of Zürich with the tenor of your resolution, and I doubt not that they will gladly improve the opportunity to convince you that even in a small republican country what must and ought to be done is well known and understood. I hope that the meeting of the Congress at Zürich will give an impulse to the endeavour to place Switzerland in that position, with regard to veterinary science, which it justly ought to occupy. A country composed, contrary to the principles of a modern political creed, of different nationalities, where different languages are spoken, and situated in the centre of Europe, between France, Germany, and Italy, has, through the differences of language, several veterinary schools; and I have always maintained that it is the task of Switzerland to produce, by means of a large richly-endowed central veterinary college, provided with good and efficient professors, the harmonious co-operation of those different schools. This idea has many disciples in my country, and I hope the meeting of the International Congress of Veterinary Surgeons will do much for its realization. (Applause.)

The *President.*—We now proceed to the consideration of the fourth subject of the programme, which concerns a general law of warranty. Superior Medical Counsellor von Hering is Reporter.

The *Reporter.*—It is a characteristic sign of the present time that it is attempted to level all differences of rank, and abolish all rights and duties and all distinctions which in former centuries peoples established between each other, between the adherents of different creeds, between high and low born, &c. &c. All these differences will gradually cease, in proportion as distance is shortened by means of the increased celerity with which it is overcome. Intercommunication has now assumed such importance, that nearly everything in the State becomes subordinate to its irresistible power. As in physical, so in the mental world; the interchange of ideas proceeds with an activity which now and then threatens to become even excessive. Liberty of individuals and nations—liberty of the soil, of trades, commerce, thought, and the press—are among the foremost demands of our time of progress; and their satisfaction is only a matter of time, regulated by the circumstances of each country. In the same ratio as the impediments and obstacles to intercourse are daily more and more removed, and the market for manufactures becomes enlarged, exchange and trade increase, and it becomes an indispensable necessity to revise the laws which regulate intercourse, and to adapt them to modern requirements. The new code of commercial laws is an undertaking of this description: it has been adopted throughout nearly all Germany, and affords, in consequence of the abolition of numerous diversities in separate States, greater security to commerce, while it procures at the same time a more speedy and less expensive administration of justice. Our domestic animals furnish a very important branch of traffic, and this, in consequence of the introduction of railways, has reached an extent which once could not have been imagined. This branch of commerce possessed from time immemorial its special laws, which, partly representing general principles, and partly dealing with details, were always intended to give the requisite security to the traffic—which is a very hazardous one, owing to the changes to which living articles of commerce are exposed. As long as the cattle trade was limited in extent, the local statutes were considered sufficient for its regulation; but since the traffic has been extended with facility over large and distant regions, and since, consequently, a thorough knowledge is required of the defects which render the article less fit for use and decrease its value, the necessity of having uniform laws and regulations in this respect becomes more and more apparent. Since the commencement of 1863, in accordance with a resolution of the Federal Diet, a Commission of lawyers has been sitting in Dresden to frame a set of laws affecting debt, to be introduced into the States composing the German Confederation. This Commission has now prosecuted its labours as far as the third chapter, first part, "On obligations with regard to defects of the article." A law of warranty has been drawn up, and the resolutions, after being read for the first time, have been published. The Commission, under the presidency of the Austrian delegate, consists of six members, namely, from Bavaria, Saxony, Hanover, Würtemberg, the Grand Duchy of Hesse, and the free town of Frankfort. After determining the general principles, the Commission did not consider it right to enter into the details, of a law of warranty, because the necessary professional assistance was wanting. But as the gentlemen of the Commission considered uniform legal provisions with regard to the cattle trade desirable, and as several groups of German States had already adopted ordinances in this respect, they agreed to procure from their Governments the necessary veterinarian information, and to request from the Government of Saxony the requisite professional assistance. A Sub-commission, consisting of the delegates of Hanover and Würtemberg, framed a draft of a law of warranty, and this was after discussed by the full Commission. Würtemberg, in company with Baden, had only lately renewed its law of warranty; in Hohenzollern the same law was afterwards introduced; Bavaria and Hesse have likewise adopted new laws of warranty, which are nearly similar to those just mentioned; Hanover has been already employed several years with the project of a new law; and so with the Electorate of Hesse, and Frankfort. As the new code of civil laws in Saxony is likewise a production of modern times, it is seen that a great part of Germany already possesses nearly uniform laws of warranty, or is now endeavouring to remodel that part of its laws which no longer corresponds to the progress of veterinary science. The previously-mentioned Commission has, as stated above, finished a general law of warranty for the States of the German Confederation, which has already been read once, and thus our task has been simplified; but however efficient may have been the professional assistance which the Commission enjoyed, it had not the assistance of a professional assembly like this Congress, whose carefully-considered resolutions are sure to meet with some attention either from some States intending to remodel their laws in this respect, or from all Germany if a general law of warranty is framed. Many years must pass before a uniform code of laws is adopted by all Germany; but a commencement has been made, and we may congratulate ourselves if we are able to add one chapter to the great work. In this chapter we should have to solve two questions:—1. To lay down the juridical principles which ought to rule in the cattle trade exceptionally; this may be called the juridical question: and 2. To designate those defects and diseases which give to the purchaser a certain claim upon the vendor,—which we may call the technical part. With the first question we have at present nothing to do; but it is otherwise with the second, in regard to which the legislatures require our assistance. We all know that many celebrated veterinarians have expressed themselves in favour of the retention of the general warranty obligation, and have declared a special law of warranty to be superfluous and not to satisfy the demands of justice. But amongst lawyers of different countries the opposite view has always been preferred, although it must be granted that the principle of the law of warranty may possibly be prejudicial to the interest of the vendor. Now, it has been generally acknowledged that no special law can be made which will meet every emergency; and it would therefore be preferable to frame a law which would secure, in the greatest number of instances and in the quickest and simplest manner, justice to the claimant. The formerly existing laws have principally protected the purchaser. They saw in nearly every vendor a rogue: but this view is unfounded for two reasons; because, although the vendor knows exactly the condition of his article of trade, and thus enjoys a certain advantage, he should nevertheless be able to claim the same protection from the legislature; and then, most vendors have been originally purchasers, so that there are as many of the one as of the other. But if the protection which is granted to the purchaser through the general warranty obligation be considered more closely, it will soon become apparent that he will less often obtain justice, through being obliged to procure evidence, than through the obligation which is limited to a few defects, and which does not make the procuring of evidence indispensable. If, therefore, separate States, such as Mecklenburg, England, &c., are mentioned as examples in favour of the general warranty obligation on account of the rarity of lawsuits, we must not look for the advantage in the correctness of the principle, but in the fact that the purchaser in most cases rather pockets his loss than cares to raise an action at law, which he could scarcely carry through owing to the difficulty of procuring evidence (1) that the defect not merely exists, but (2) that it already existed before the sale, and (3) that it is of such importance, that the value of the article, or its utility for the intended purpose, is thereby deteriorated to such an extent, that the purchaser, had he been aware of the fault, would either not have bought the animal at all, or would only have bought it for a smaller price. It is, therefore, not within our province to decide whether a general law of warranty suffices, or whether a special law is preferable; we have likewise nothing to do with the other legal ordinances regarding the periods of limitation, the forms of the lawsuits, &c., as most legislators have already decided in this respect, and we can only give suggestions which may be considered. But our task is to determine the species of animals in which diseases and defects shall be considered as entitling to redress, and the periods within which the purchaser may seek redress at law, and to come to an unanimous decision with respect to these subjects. It would be ten times easier for this Assembly, which consists of more men of eminence in our science than were perhaps ever before collected, to frame ten laws of warranty, than to agree unanimously to one. But let us make an attempt to furnish the technical material for a law which shall correspond to the modern experiences of veterinary science, and satisfy the requirements of commercial intercourse as now carried on. The Committee has agreed on certain points, which are already printed and in the hands of the members. It would be best to open the debate first on the general declaration of the Committee, which is as follows:—

"(A.) Veterinary science has progressed sufficiently far to be able to judge concrete cases: (B.) but veterinary science is not able to enumerate, even approximately, all defects, and accurately to determine a period of warranty with regard to them, which would give the purchaser a well-founded claim at law: (C.) the retention of the general warranty obligation is, from a veterinarian point of view, considered necessary; nevertheless, (D.) special defects entitling to redress shall be mentioned : (E.) the retention of the general warranty obligation is likewise necessary, *i.e.*, to the abolition of the so-called night-defects (a guarantee of twenty-four hours' duration for all diseases which may appear during this time) : (F.) besides the general warranty obligation, a period of limitation of three months at the utmost is considered desirable, because, as a rule, no scientific proofs can be adduced after the lapse of this time."

These are the general points from which the Commission proceeded: it also specified individual defects entitling to redress, and designated the warranty period for each. We have stated previously that, besides the special obligation, the general warranty obligation ought to remain in force, and that this, in a legislative point of view, may have been the stumbling-block. Most legislatures have, on introducing special laws of warranty, abolished so far as possible the general warranty obligation. The general warranty obligation would not permit the application of the principle that the purchaser should not furnish the proofs that the disease previously existed, but the special laws of warranty give him the great advantage that he is not obliged to furnish the proofs, because the law supposes that the disease previously existed. If, then, the purchaser is placed, by means of the special laws, on such advantageous terms, it is, as far as I have been able to learn from the discussions at Dresden, the opinion of lawyers that he may well relinquish all further claims. The opinion which I have had the honour to communicate to you is not only that of the Committee, but it embodies the principle acted upon in all former legislation on the subject, and adopted in the French law, which also adopts the general warranty obligation on the whole, but nevertheless embodies regulations with regard to cases of special warranty, with the particular provision, that a guarantee applies to the defects enumerated in the special regulations, but not to others.

Professor *Reynal.*—I do not consider it possible to agree upon an international system of law on the subject of defects entitling to redress, as proposed by the Committee. Each country has its usages and wants, and legislation can only be the expression of those customs and wants. In regulations respecting redhibitory defects there are two distinct categories. The one comprises all that is special with regard to the subject; thus, the French law of the 20th of May relates solely, first to the designation of redhibitory defects, and, secondly, to the duration of the warranty obligation. The party who has entered into a redhibitory agreement, if desirous of withdrawing from it, will do so by civil process. The law relating to this subject must obviously differ in various countries, and on this account the framing of uniform regulations would be impracticable. Too much stress should not be laid on the importance of a law on redhibitory defects; such a law would of necessity be only temporary, for in proportion as zootechnical and veterinary science advances, these defects will, it is evident, decrease in number. I find even that the Committee unnecessarily creates new redhibitory defects; at all events, were the law in France to be enacted anew, the list of defects would be less lengthy. The best law would be that involving the smallest number of lawsuits; but by extending the scope of redhibitory defects, additional inducements to litigation would be created, and thus the interests of vendor as well as of purchaser would be endangered instead of being protected. In France, legal proceedings having for their object the annulment of a contract are very expensive, and especially if the suit is undertaken against parties in foreign countries; the expenses often exceed the value of the beast. In starting, therefore, from these premises, I do not consider it possible that regulations common to all countries could be agreed on, and I shall vote against the proposal. I am, likewise, convinced that the Committee is wrong in introducing additional redhibitory defects; but I approve of the proposal tending to decrease the term of warranty.

Mr. *Wüst.*—As you have heard from the Reporter, the Grand Duchy of Hesse, as well as Würtemberg and Baden, have promulgated new laws of warranty. But this law was not enacted by Hesse in concert with Würtemberg and Baden, but was discussed and framed in our own legislature. I was Reporter on the subject, and the technical part of the law was entrusted to me; but the lawyers had a great deal to do in framing the law, and I was not permitted to interfere much. The law had scarcely been published, when a scientific criticism was brought to bear on it; and after only a short period had elapsed, the ordinances and regulations of the warranty law were variously interpreted, examples to its prejudice were cited, and the law was declared to be more or less defective. In a technical point of view, it certainly is not without defects. It contains some provisions which it would have been better not to admit; as, for instance, the regulation that with regard to animals which have been bought and which fall sick within twenty-four hours after, a warranty obligation exists. More especially, several defects and diseases have been admitted, which ought not to have found a place in any modern law. I agree in general to all that the Committee has proposed, and should like to see it adopted in principle.

Professor *Hertwig.*—As these general propositions only set forth principles, and furnish axioms which are intended to guide legislation, not much can be said against them. The code of common law in Prussia, or, as it is called, the common "Land-Recht," contains regulations of this description, which are generally adopted, and which likewise treat on general warranty obligations; there are also special ordinances. It is, however, almost impossible to avoid a general determination; it is, indeed, indispensably necessary, but under certain conditions. We find it stated in the Prussian code, touching this point: "If an animal fall sick within twenty-four hours after delivery, it may be supposed that the disease already existed previous to the delivery; but the purchaser must give notice of this occurrence to the vendor, or the authorities, or a veterinarian, in time to allow an examination into the origin of the disease to take place." In this paragraph there are two provisions, which not only protect the purchaser, but also the vendor. At first it is said that the law supposes the existence of the defect before the purchase; but this does not contain an intimation that the vendor is the guilty party. On the contrary, the purchaser is to a certain extent obliged to prove that, in the treatment of the animal, no serious error which may have produced the disease has been committed. It is scarcely necessary to remind an assembly of professional men like this that there are different kinds of colic, which appear often very suddenly, in consequence of the error of the purchaser in treating and feeding the animal in an entirely altered manner.

The law further orders the defect to be reported so early as to render an examination possible. If a person were to report a case of this kind after a lapse of eight days, his right as purchaser or claimant would, as a matter of course, be lost, for it will be asked why he had not given notice sooner? In respect to cases in which the animal dies, the Prussian law says: "If an animal dies within twenty-four hours after delivery, the loss falls on the vendor;" but it adds—"if it cannot be ascertained beyond doubt that the disease originated after delivery." This paragraph is, as it were, the complement of the foregoing, and, in my opinion, secures justice to both parties.

Mr. *Deisinger.*—Formerly, there prevailed in Bavaria, in nearly every town, nay, in almost every house, a different law, and a great number of ordinances, with regard to warranty in the cattle trade. A law of warranty was a want which had long been felt, and in March 1859 we obtained one. During the six years which have passed since then, out of ten lawsuits, nine after many delays have been compromised, both parties paying, and knowing what they have been litigating about; the tenth action, after repeated delays and many appeals, has at last been decided by the Court. I would therefore consider it better for Bavaria if it had no law of warranty concerning animals at all. All Bavarian lawyers ought to be very grateful for this warranty law, as a never-failing source of income. I should therefore be glad to see it abolished, because the common law of Bavaria is amply sufficient to protect the vendor as well as the purchaser.

Professor *Tscherning.*—In Denmark, where the breeding of cattle is carried on extensively, and where there is a large traffic in cattle, there exists no special law of warranty. Contagious diseases have been considered only to the extent that the sale of cattle suffering from them is considered null and void. But actions at law are of very rare occurrence, which we consider so great an advantage that we fear to make any alterations. Even with regard to contagious diseases, we have no period of warranty, and if I wished for an alteration, it would be in respect to the period of warranty, though not for separate cases, but as generally as possible.

Mr. *Beer.*—We have been informed by the Reporter, that in some German States laws of warranty have lately been introduced, and that therefore the adoption of a new law could only be the subject of a wish on our part, as far as the Governments of these States are concerned. But I think the Assembly, should it succeed in agreeing to a fitting law of warranty, ought to demand of these Governments to pay particular attention to it. I believe it would be best to abolish all laws of warranty, because the terms of the contract entered into by the purchaser are of more advantage in protecting the general interest than specific laws of warranty. And I think we should not fail to submit to the Governments, the opinion that the numerous and diverse laws of warranty prevailing in the different German States are far less beneficial and to the purpose than would be one law common to all.

Professor *Zlámal.*—I am one of those who fifteen or twenty years ago acknowledged the error of special redhibitory defects and periods of warranty. I have declared, by word and writing, that it would be a benefit, and would raise the dignity of the profession to which we belong, if no special defects were stated, but if every case were left to the decision of the veterinary surgeon. But if we ask how this is possible, and what is required for it, we find that it would require so many veterinarians that wherever a sale took place, or a purchase was effected, a competent individual must be present to give his decision with regard to the case in question. But this renders a second condition necessary, which I am afraid will be wanting for a long time to come, namely, such an advance in the social position of the veterinary surgeon that his authority would replace the interference of the lawyer. These two conditions, Gentlemen, do not exist, and it will therefore be necessary in each case to be as precise as possible so as to enable even one who has not had great experience to detect the defect at once, and to secure that justice shall be done to the purchaser in the most direct manner by the nearest magistrate. Under special ordinances, lawsuits can only originate when the vendor declares his readiness to supply the counter-proof, if the disease has been detected and he refuses to acknowledge its existence; but under a general law actions are likely to occur more frequently, because each party will procure the assistance of a professional man, and will thus by scientific means obtain the desired result. I must therefore express myself in favour of the proposal of the Committee, that a general warranty obligation ought to exist, in order to give greater weight to the decision of the veterinary surgeon in individual cases; but that a special law should also be adopted to avoid special deductions, and consequently lawsuits, in each case. With regard to the so-called night-defects, and the desire to abolish them, I quite agree to it; for, touching whatever may happen to the animal within the twenty-four hours, ocular evidence and other proofs are procurable, and in each case this could be adduced.

Professor *Haubner*.—Permit me to remind you of the great difficulty which would attend the framing of a common law of warranty for even a few States. In the south-western German States, especially in Bavaria, Würtemberg, Hesse, and Baden, the necessity for remodelling the laws of warranty has been felt as long as thirty or forty years ago. The Governments of Würtemberg and Baden soon agreed on the desirability of introducing a uniform law into both countries. It has been also attempted to come to a similar understanding with Hesse and Bavaria, but this attempt did not lead to any result. Würtemberg and Baden proceeded, therefore, by themselves, and after many years' deliberation succeeded in framing a nearly uniform law of warranty. Subsequently, the interpretation ot individual points was proceeded with in these two States, and the differences which still exist will, it is to be hoped, soon cease. I further ask attention to the fact that the same subject was discussed about fifteen years ago, at a meeting of German veterinary surgeons, and they declared themselves of opinion that the French law as it existed at that time, but which did not mention redhibitory defects—that this law, especially as enforced in the Rhine Province, would be best and fittest for Germany. This amounted simply to the proposal of a general warranty obligation, without specifying redhibitory defects, but with a well-expressed definition or understanding of a redhibitory defect. The Society of German Veterinary Surgeons gave this opinion; but although I tried to urge that it should be acted on when the warranty law of Baden was discussed and claimed especial attention for the point which is mentioned first in the report of the

Committee, namely, that veterinary science has progressed sufficiently to be generally able to judge concrete cases, I received the answer that all veterinary surgeons have not made such progress in science. In short, all laws which have as yet been framed, have avoided the general warranty obligation, and have not gone beyond German common law. The proposal of the Committee, in my opinion, is not radical enough. If we assert that veterinary science has progressed so far as to be, in general, able to judge concrete cases, we ought to adhere to the general warranty obligation, and not introduce something which brings us into conflict with it. We ought not to propose, besides this general principle, special redhibitory defects. Nevertheless, if this has been done, I would have desired not to have the individual defects specified here, but would have preferred to be content with the discussion of the general principles that we had decided on:—1. What to understand by a redhibitory defect, and on what idea to base it? 2. Are compulsory redhibitory defects to exist, and shall they be specified? 3. To which of the principal species of animals are these defects to be limited? 4. How old must these animals be before the laws of warranty can apply to them? In this respect we find no uniformity in the different laws of warranty: the warranty law of Switzerland, for example, demands that an animal must be six months old before the warranty law can apply to it. 5. The principles ought also to be established which, in general, should influence the determination of the periods of warranty. I would further have desired (6) an agreement on a system which might have served as a basis for the deliberations on periods of warranty—the term of a week, or of ten days, as is the rule in Switzerland—because there exists no uniformity in this respect in most modern laws, as some calculate the periods by weeks, others by periods of ten days. These and some other points I would have proposed, because they would gradually have produced an unanimous agreement. But if we take our stand on the special point mentioned in the propositions, I am firmly convinced that our proposals will lead to no results. (Applause.)

Mr. *Schell.*—I likewise am in favour of the general warranty obligation, without stating the special redhibitory defects, and without special periods of warranty. I am in favour of it, in the first place, from theoretical causes; and, secondly, practical experiences convince me of its correctness. I reside on the Rhine, in a region where the Code Napoleon, into which the laws regarding the cattle trade were introduced from the old Roman Codex, is still in use; and I can assure you that all the difficulties which are commonly ascribed to a law of warranty embodying general principles are not experienced in my country. The Commission likewise seems to have thought the exclusive proposition of general ordinances to be scientifically the only correct principle; and that opinion seems at first sight borne out by reasons of expediency, which induced the Committee further to enumerate special diseases and special redhibitory defects. But theoretical proof of the utility of a general warranty obligation is scarcely required. I will merely state here, that a law which only lays down general principles is, in my opinion, best qualified to protect vendor and purchaser, because every case must be particularised; and it may be agreed that this is necessary in every individual case of disease, because science has recognised that in disease the same animals always progress differently. This reason, and the further reason, that it would be very difficult to select one or two of the so-called redhibitory defects and prescribe periods of warranty for them, would make it seem most to the purpose that the Assembly should decide in favour of a general warranty obligation, without special redhibitory defects or periods of warranty. Another difficulty has been mentioned by one of the previous speakers, namely, that in many districts there is not a sufficient number of veterinarians to decide individual cases on scientific principles. I grant this; but I beg you to remember that in this respect we are steadily improving. The number of scientifically-educated veterinary surgeons increases day by day, though there are yet obstacles which, in other respects, impede the training of a sufficient number of competent scientific veterinarians. As soon as these impediments have been removed—as soon as the State acknowledges that the veterinary surgeon is of great benefit to the community at large, then a great number of well educated men cannot fail to devote themselves to our science. It has likewise been suggested that, if we have special redhibitory defects and periods, and since there is no doubt that we have not a requisite number of really scientific veterinarians, men of a less degree of education would be of some assistance to the Courts. I am not certain that this view is quite correct; I must even deny that it is easy even for the scientific veterinary surgeon to detect individual and seldom-appearing defects. I need only remind you of asthma, if you intend to consider it a redhibitory defect, and of staggers, and ask you to consider how often different opinions emanate from really competent judges in this respect. In States where a law is in force for the settlement of questions of this kind by official opinion, even if competent veterinarians observe such cases and give their verdict, a great difference of opinion in regard to asthma and staggers cannot but appear. Further, we must desire to have a greater number of scientific veterinarians, if we intend to establish special redhibitory defects, with fixed periods of warranty. I am, therefore, of opinion that the state of the veterinary profession does not present any important impediment to the adoption of a general warranty obligation without special redhibitory defects. (Applause.)

Professor *Hertwig*.—Our honoured colleague has just maintained that by adherence to general principles fewer lawsuits are likely to occur; but the cause of this lies not merely in the adoption of general principles. It certainly is the fact that, in the Rhine Province, proportionately fewer lawsuits of the kind which we have in other countries occur. But actions and disputes, lawsuits and different opinions, are essentially the same, not, perhaps, during their progress, but in the mode of execution. There arise, without doubt, in the Rhine Province, between vendor and purchaser, as many reciprocal claims and demands as anywhere else, but the Rhine Province excels in the form of the lawsuit, and the manner in which it is decided. In the Rhine Province, the French form of procedure is observed in actions at law; and cases are decided by juries and competent men in a few days, which would anywhere else require months, and occasion endless writings and official opinions and counter opinions, &c. I would therefore request Mr. Schell to describe the manner in which lawsuits are conducted.

Mr. *Schell* complied with the request, giving details as to the process and operation of the law of warranty in the Rhine Province.

Director *Gerlach.*—The report of the Committee has not altogether met my expectations and wishes. It has been maintained that the definition of no special redhibitory defects is required in the cattle trade. Several gentlemen from Bavaria have stated this. Now I believe this is in direct opposition to the experiences gained during centuries; our ancestors already considered their adoption as necessary, and from the uncultivated practice emanated customs which were dictated by necessity. But that which was then already necessary has now become indispensable. But the subject is different. If gentlemen from Bavaria are not satisfied with their present law, and therefore prefer to have none at all, I agree with them; but to say, in consequence, that every law of warranty should be abolished is, I believe, going a little too far. Our domestic animals, as living articles, are exposed to changes: that which we cannot detect in them to-day may suddenly appear to-morrow; the defects may have been hidden, and their recognition requires a particular knowledge of the subject. These are circumstances which, by determining the legal mode of procedure, deserve grave consideration. It has further been pointed out by Professor Reynal, provided I understood him correctly, that an international law of warranty could not be framed, because local circumstances exert a great influence, and the diseases differ likewise. This also I do not consider quite correct. Diseases are everywhere the same, although their causes may differ. If the causes produce different effects, then they must be considered and treated as different diseases; but the disease, although the cause is different, will always be the same, if it appears in a fixed form. There certainly exist variations, but I think that, for example, staggers will be in France just as much staggers as in Germany, likewise asthma, and in both countries these are diseases produced by the same causes. But the mode of legal procedure differs. I believe, therefore, if we do not enter too deeply into details, we shall be enabled to deliberate here on the technical basis of an international law of warranty. Of course we cannot promulgate a law; we can only say: "This is the position we occupy, these are our experiences, according to which authorities may frame the law." I shall later answer the remarks of Med. Counsellor Fuchs. I cannot likewise agree cordially to the project of the Committee, because it is not sufficiently exact. Two things are concerned in a law of warranty, namely, first, the general warranty obligation, according to which the vendor is responsible for all those defects which existed at the time of the sale, and before the sale, which the purchaser did not and could not detect, for the detection of which special examination and knowledge was required, and which decrease the value of the animal considerably. This expresses the ancient Roman law, which has been introduced into all modern codes, and which has gradually replaced all special German laws. It is remarkable that this principle was adopted everywhere formerly, when there existed no system, or at least a very defective one of veterinary science, and thus it found admission even into Germany. All the laws of the last century contain this principle, for example, those of Austria, Prussia, Hanover, Mecklenburg, and England. As completely juridical as this principle is, it was found impracticable with regard to the cattle trade, because there existed no scientific veterinary art, and the principal is so juridical, that it required a technical basis, according to which concrete cases could be decided. But this was impossible, and for this reason, the principle was not considered practical, and came in discredit with lawyers and legislators. This may likewise be the cause that the laws of the present century have omitted the principle, and that it is not mentioned in the most modern laws of warranty in Southern Germany, in Baden, Würtemberg, and Bavaria. But this is a reproach against our science, and therefore I desire that this Congress may give it as its opinion that now the time has arrived when this law, this axiom, has found its technical base. Although there may be here and there an absence of representatives of science, this cannot be considered as an impediment; science as such exists, and this alone is sufficient. We are now in a position to judge concrete cases; this, of course, is limited, but we are able to judge them, and for this we need not furnish any proof. With this we are able to prevent expensive lawsuits. To know the right, where there is no proof adduced on its behalf, is a great progress. But we are also in a position to state, this or the other defect has existed so and so long, and this likewise forms a scientific basis.

But that in modern laws a certain contemptuous treatment of our science appears, is undeniable, and against this we must protest and declare. You wrong us; we have progressed sufficiently, and yet you do not employ our science by legal proceedings; you do not use science, which nevertheless endures for ever. What has been stated about our progress and our veterinary surgeons—I point to Prussia—is known to most gentlemen; against this we must likewise remonstrate. We have now arrived at a point when a general warranty obligation may be put in practice, and of this we ought to inform the lawgivers; if they make no use of it, we may rest satisfied with having at least done our duty. We are now in a position to state that our resolutions must prove beneficial, and although legislators may have formerly consulted professional men, it will produce a greater moral effect if it is stated here that science has now arrived at that point, and we shall not hear the expression: These are solitary, individual, and arrogant views. This concerns the first point to be considered in every law of warranty, and we must adhere to that principle. The second point concerns the special redhibitory defects. This second point is of German origin. Formerly sales were effected on trial, certain verbal guarantees were given, and certain defects mentioned. From this the special law of warranty gradually emanated, according to which certain defects are stated, and for certain periods determined, during which it was juridically supposed that the defect already existed before; so that the purchaser is only obliged to prove that the disease exists, but not, and this is more difficult, that it existed already before the sale. This means was formerly quite effective, which found from reasons of expediency more and more support; it passed even the German frontiers, entered France, and made converts in Italy, and all countries where this maxim has not been already introduced endeavour to obtain it. We, from an abstract scientific point of view, are partly opposed to it, and have good reasons for it; but the reasons of expediency which dictate this law are of great importance, and deserve consideration; they are even of such great importance that this law, incomplete in itself, must be designated as admissible. Medical Counsellor Fuchs has stated it would be illogical to recur to this special law. Again, this I beg to observe, that we said "in general;" concrete cases are extant. But without further regard to this, the special law is so practical that the judge would not listen, even should we propose its abolition. There are certain diseases which progress in a stereotyped manner, regarding which a certain duration may be easier determined than in others; for example, it is not easy to state how long an animal has been subject to asthma and staggers. Different periods may be stated, but this depends on individual opinion; to determine a certain time is generally easy, when it is said: The majority of cases proves that the disease will not re-occur within a certain period; that this period can therefore not endanger the interest of the vendor, and individual opinions cannot overthrow this fact. The purchaser is no longer required to furnish proofs; law proceedings may be shortened, the whole mode of procedure becomes simplified, difficulties removed, and lawyers must act according to an established system, in order to let a shortened procedure take place; this we must acknowledge. We would not succeed with our general principle if we did not besides recognise special redhibitory defects. Thus we understood the subject. But special redhibitory vices have become greatly limited, owing to the supposition that general warranty obligation exists. If this were not the case, an endless number of redhibitory defects would have to be stated, and the warranty periods would likewise have to be differently arranged. By the special deliberations of the commission, I greatly deviated from my principles, but always with consideration of the presence of a general warranty obligation. With regard to the warranty periods, we have used weeks in reference to their determination, because the system was employed in the deliberations concerning the obligation law at Dresden, and because, we considered, that the public prefer to calculate by weeks rather than by decimal numbers, and because it is perfectly immaterial how the calculation takes place. If Professor Fuchs misses a definition of redhibitory defects, I must say I consider it entirely superfluous. With the general warranty obligation, one has already been determined, and for special redhibitory defects there is none necessary, because the diseases are mentioned by name.

I am not opposed to it if a general definition precedes it; for example, in the following manner: "Amongst special causes of unsoundness, only those shall be mentioned of which a fixed time may be determined, which have a uniform course, and which under usual circumstances cannot be recognised at the sale." I am not opposed to this because only a maxim is concerned. The so-called night-defects, which are still mentioned in some States, furnish another reason for retaining the general warranty obligation. If we abolish this, then night-defects must remain. Certainly such diseases may appear which do great harm to the buyer, of the cause of which he is nevertheless perfectly innocent. But it is dangerous to make use of them, because animals often die within the twenty-four hours: without the slightest reproach falling on the vendor. These diseases render, therefore, a general warranty obligation imperatively necessary. A further reason in favour of retaining it is, that the special causes of unsoundness form only an incomplete whole; that we are not in a position to enumerate even approximately all individual defects, which would give the purchaser a claim against the vendor. This was felt by all legislators, and for this reason we have seen that the newest laws contained categories; but they likewise described vague ideas with collective names, in consequence of which great confusion arose. This is dangerous, and cannot last, and so we are not able, as previously mentioned, to do without the general warranty obligation. I repeat that I do not agree even with the construction, as presented by the Commission, and would therefore submit several propositions. At the commencement it ought to be stated that the general warranty obligation must be retained, on account of reasons assigned by the Committee, and described as reasons A and B, and from the cause C, that the retention of night-defects is, from a veterinarian point of view, not to be recommended. It ought further to be stated that on the other side the existing power of limitation by the general warranty obligation is not long enough, and that we must extend it a quarter of a year; that, because adducing technical proof is not possible after a period of three months, as a rule a longer period of limitation would be useless. It would likewise be a disadvantage to the buyer. A longer period of limitation makes him careless; nay, he may even speculate by employing the animal until the period is nearly passed, and then only would he commence his action at law. The longer he waits and hesitates the more difficult would it be to adduce proofs, and perhaps he will at length acknowledge, to his disadvantage, that he has waited too long. For this reason the limitation period must be as short as possible, and this, from our position, is the period during which technical evidence may be adduced. In conclusion, it ought to be stated that, besides the general warranty obligation, special redhibitory vices must be enumerated. I have already mentioned reasons for this; they are partly reasons of expediency and partly to serve as a transition to a general exclusive warranty obligation. I beg to recommend these remarks to your consideration. (Applause).

Mr. *Ernes.*—Gentlemen; whether a general law of warranty is necessary, useful, or possible, I am not in a position to give an opinion. I can only state that in England we have none. The live articles of trade are sold under the same laws as other articles. The following custom exists in England: the sale is effected in one of three ways, namely, either without any guarantee, then the buyer of course has no claim; or with special guarantee, which only extends to certain defects, so that other defects give no claim to the buyer; or lastly, with a general guarantee. If in this case, for example, a horse is sold with a general guarantee, and a serious defect appears, the purchaser would be obliged to give notice of this fact to the vendor, and to demand of him to take the horse back. This the vendor will always do. But if the vendor does not comply with the demand of the buyer, he (the buyer) will sell the horse by auction, and will bring an action to recover the difference between the sum which the sale by auction produced and that which he paid originally for the horse. If this difference amounts to less than 50*l.*, the costs of the lawsuit will be lighter, because the suit comes for decision before the county court, and will soon be finished. But if the difference involves a larger amount, then the expences attendant on the lawsuit will be likewise heavier. In this respect therefore I agree to what was stated by the gentlemen from Bavaria, namely, that no law is necessary: we have in England very few lawsuits. It is a general rule with us, that every one, before he concludes a bargain, consults a veterinary surgeon; and if he declare the animal healthy, it will be bought. A buyer must prove that any defect in an animal existed before the sale, or he cannot proceed in law. If the animal dies, a careful *post-mortem* examination is made by veterinary surgeons, in order to ascertain if the disease existed before or after the sale.

Dr. *Castres.*—Gentlemen; I wish only to make a few comments, which I believe I owe the more to you, as Department Veterinarian Schell had been invited to give some explanations about the condition of Rhenish Prussia, where French laws are still in force, and because, in the Hessian Rhenish province, a part which I have the honour to represent here, where the same laws are used, these conditions are entirely different. In Rhenish Prussia, as well as in the Hessian Rhenish Province, the § 1641 to § 1649 of the French code are the paragraphs which decide disputes in the trade with domestic animals. The § 1641 contains the following: "The vendor is responsible for those hidden defects of the sold article which render the article either unfit for the intended purpose, or decrease its usefulness to such an extent that, if the buyer had known them, he would have either not bought the article at all, or would have paid less for it." According to the juridical principle of this article, there exist no principal defects in reality—no designated diseases as such; but all diseases and defects, which possess the qualities mentioned in the paragraph, are considered as being included in redhibitory defects. The legislator, well comprehending that the period during which the purchaser may bring an action in consequence of a redhibitory defect, cannot be the same in all cases—that its duration, which ought to be as short as possible, must depend on the nature of the defect, because there exist some which may be detected a few days after the sale, and others the detection of which necessitates sometimes three or four weeks—created, as it were to make § 1641 complete, the article 1648, which contains the following: "The action at law, which is brought in consequence of a redhibitory defect, must be instituted by the purchaser within a short time, according to the nature of the defect and the custom of the place where the sale took place." The law, in this article, mentions neither the hidden defects nor the time during which the vendor remains responsible for each of these defects. According to these general ordinances, the first question which arises by a lawsuit is, "Does there exist a defect? does it possess the qualities as described in § 1641? and how long must the vendor, in accordance with the instructions of § 1648, remain responsible?" According to § 1648, legal proceedings must be instituted within a short time; the duration of the warranty period shall depend—1, on the nature of the defect; and 2, on the custom of the place where the sale took place. In the first place, as a decision on the nature of defects in our domestic animals necessitates a thorough knowledge, a judgment can only be given by competent professional veterinarians; but, in the second place, the custom of the place is consulted. The legislator has therefore given to the judge the power to decide, according to his opinion, the period of limitation, dependant on the nature of the defect and the custom of the place. But this article can likewise be interpreted in another manner—at least this seems to be the case, judging from numerous decisions—namely, that the custom of the place is not alone applicable to the term how long the responsibility lasts, but even to the decision of the redhibitory defect itself, in consequence of which old local customs, and rights of habit, are completely re-established. It is not my intention to inquire whether this interpretation be correct or not; but a great difference of opinion prevails in this respect amongst the lawyers of France. Whereas one court determines the periods of warranty solely in accordance with local customs, others limit the redhibitory action at law to the defects contained in the local customs, and have decided accordingly. Nay, even courts, which sometimes decided in the first mentioned manner, changed after a while their mode of proceeding, and adopted the latter. The Court of Commerce of Rhenish Hesse adopted the same view, and proceeded in consequence according to the provisions of the ordinance of the Palatinate of March 20th, 1776. You will observe from this, Gentlemen, that in Rhenish Prussia they proceed according to the general ordinances of this law; but in my country—the same as was done formerly in France—the old local customs and laws of habit were re-established, and with them decided principal defects; and legal proceedings could only be instituted when they were based on one of these special defects. The reasons why the courts proceeded in this manner will be chiefly found in the following. We have seen that, according to general law ordinances, as contained in this law, the question arises by a lawsuit: "Does the defect exist? does it possess the qualities which are enumerated in the law ordinances? and how long must the vendor remain responsible?" To solve this question, a certain special knowledge is necessary, which the judge, as such, cannot possess; and for his information the assistance of professional men was required. But if the answering of these questions was entrusted to professional men, it remained entirely with them to decide a lawsuit according to their judgment; and the judge had to do nothing but to put the law in force, and sanction the opinion given by the professional men. Although this law, from a veterinarian point of view, may appear just, the courts did not believe that it could have been the intention of the lawgiver to entrust to a professional man these functions, in consequence of which, confusion, and often protraction of the lawsuits, would be caused; and which, instead of supplying the judge with information, would be productive of many perplexities to him. Thorough professional men were not always selected, but sometimes laymen acted as experts. It is likewise a fact, that every professional man does not possess the requisite information; and that individual opinion with regard to the nature, cause, duration, &c., of a disease or defect, frequently differs; as a consequence, the decisions of several professional men would, in a particular case, be opposed to each other. If the judge was obliged to decide in accordance with such opinions, he found himself often in a position to order to-day the vendor to take the article back, and to-morrow the purchaser to keep the article, just as the professional men advised him. These occurrences contributed principally to the omission of general ordinances at the time the French law was promulgated, in 1838, and to the introduction of a special law, in which all redhibitory defects were enumerated, and the warranty period for each defect fixed. With regard now to the legal procedure, it certainly does happen, as stated by Mr. Schell, that such lawsuits are commenced before a justice of the peace, and that they are settled at once by means of composition. But these are cases which happen very seldom, because generally one or other of the parties is a merchant; then, if the justice of the peace is not competent to decide, the proceedings must be removed to a court of commerce, in consequence of which great loss of time is occasioned. In tracing the course of a lawsuit of this description, it will be found that a great many formalities are to be gone through, and a great many preliminary questions to be answered; so that sometimes weeks and months passed before a decision is given. Such lawsuits are necessarily protracted, occasion heavy expenses, and from the peculiar nature of the object about which the suit is instituted, and which necessitates an outlay of money every day for its support, without conferring in return the slightest profit until the suit is finally settled, the costs are still augmented. It often happens that the expenses which already have been incurred are so great that the object of the suit is of secondary consideration; then the principal question is, who has to pay the expenses?—for this reason are these lawsuits often prosecuted with such bitterness and obstinacy. This mode of procedure often occasions other evil consequences to the litigant parties; and, as an example, I will mention one instance. By these proceedings a long time often passes before the animal is examined. Then is it possible to prove by a late examination that defects existed at the time of the sale? Certainly, not in all cases, because many of these principal defects may originate in a much shorter time than the duration of the warranty period. To what greater extent may this be the case when the examination only takes place after a much more protracted time; or an animal, about which the lawsuit has been instituted, dies, from no matter what cause, during the time that the suit is pending. How is the judge to decide in such a case? He would nonsuit the claimant, because he has not furnished proof that the defect has really existed; but this would be a great injustice to the man, as the legal mode of procedure has deprived him of the means to adduce this proof. I have reason to believe that this is the fate of many actions at law in Rhenish Prussia likewise. Since the introduction of the new Hessian warranty law, the mode of procedure in Rhenish Hesse is regulated by its ordinances; and this advantage has been derived from it, that the preliminaries of a lawsuit are less complicated now than formerly, because the proceedings commence with the establishment of the facts of the case—that is, the examination of the animal in question. The number of lawsuits have, however, greatly increased, which perhaps is a consequence of the clauses in the law not being framed in a sufficiently clear manner, so as to admit of but one interpretation.

Dr. *Röhl.*—I shall consider the necessity for a general warranty obligation from another point of view, namely, the sanitary. We have in Bavaria, and especially in Munich, gained the experience that from this point of view it appears indispensably necessary to adopt a general warranty obligation in the warranty law. Until the year 1859 we had in Bavaria the so-called general warranty law, according to which the vendor had to guarantee against all diseases which existed at the time of sale. Until then, it often happened that the butcher, on killing an animal, discovered a disease, which he reported to me at once, and I could then institute the requisite police measures; but since the year 1859, when we got a special law in which only tubercles, pneumonia, and phthisis are guaranteed, no butcher has made his appearance. That numerous cases of disease occur, which render police interference necessary, is a fact which requires no proof. In the free slaughter-house of Munich ten to twelve thousand head of cattle are slaughtered annually; and amongst them there are seven hundred to seven hundred and twenty cases which render police laws necessary. Those gentlemen who know this institution more intimately may perhaps raise the objection, that animals of poor quality, or sick animals, are only slaughtered; but animals of all kinds are killed by every butcher, especially if he has anything to do with the sausage-trade. What protection have we if the law has not made provision in this respect? None, where there exists no common slaughter-house, or the slaughter of each animal is superintended in the country. This sanitary point of the question I recommend to your consideration, and hope you will acknowledge the general warranty obligation a necessity.

Dr. *Husson* suggested that the debate should now close.

The *President.*—Gentlemen who agree to the proposal of Professor Husson will please to rise. (They rise.) It is adopted. Two gentlemen have, however, expressed a wish to speak before the debate is finally closed.

Dr. *De Souza* (in French).—In Portugal there exists no special law relating to redhibitory vices. Common law, as generally used in commerce, is likewise applied to the trade in domestic animals. The ancient laws of the kingdom contain identical enactments on cattle trade and slave trade, and the commercial code makes no difference between animals and goods. The laws of Portugal consider as redhibitory vices such defects and shortcomings as are not apparent at the moment of sale, which render the animals unfit for the purpose for which they were intended, and reduce their value to such an extent that, had the purchaser been apprised thereof, he would either not have bought at all, or would have paid less for them. Such vices as do not arise from physical causes (that is, restiveness, slowness, &c.) are comprised in the list of redhibitory vices, the same as the want of those qualities, warranted by the vendor, and entitle the purchaser to have the contract rescinded. The rules relating to district veterinarians order the employés to resort to the French law of May 30, 1838, and to the decree of the 18th April, 1845: the defects enumerated in the French law are considered as redhibitory defects in the army. I am of opinion that the special law is very convenient, particularly in my country, where questions about the cattle trade are very difficult to solve, and therefore I intend to vote in favour of the Committee.

Dr. *Field.*—I perfectly agree to everything said by Professor Reynal, and as the motion for the close of the debate has been adopted, I abstain from further remark.

The *Reporter.*—As reporter, I beg leave to make a few more observations. Of course it is not intended to give to the word "international" such an extended meaning as our colleague Reynal wishes. We do not intend to give laws to France; we are satisfied if we can create one common law for Germany. If this law is found useful for Germany, other countries may adopt it or not; that depends entirely on themselves. Nowhere has the necessity for clearly describing special redhibitory vices become more apparent than in France. In spite of § 31 of the Code

Napoleon, the Government has promulgated a special law of warranty; the necessity of this must have been felt not only by Government, but also by lawyers and the Senate. Therefore, in France the necessity for a special warranty law likewise existed. With regard to the statements of our colleagues from Bavaria, I regret them. I am sorry they should object to a law which has been considered necessary; and, although it may have defects, like all other laws, it nevertheless has put an end to that state of things in which in one village a different law was in force on each side of the road. It must be considered a step in the right direction that a common law was promulgated for Bavaria. A general law of warranty has been, by nearly all gentlemen who have spoken on the subject, considered desirable. If a general law of warranty is in force, the general periods of limitation exist likewise, which as a rule last six months. I do not think that in many cases, even by the short periods of warranty which the law allows, it will be possible to state with certainty that the defect existed already before the sale; neither can the purchaser be permitted to institute legal proceedings after months should have passed. In consequence of reducing the warranty periods, justice is rendered more sure and a greater freedom of intercourse has been created. The general warranty obligation possesses only this disadvantage, that the purchaser, who ought to be especially protected by this law, because it is supposed the vendor knows his articles of trade better than the buyer, is, on the contrary, not sufficiently protected. The general warranty obligation is therefore only of value when it exists beside the special redhibitory defects. The institutions of England have been mentioned as examples. I must confess that the laws of England are in many respects not worthy of imitation. Englishmen may be satisfied with them; but I should like, as an example, to draw your attention to the fact, that in England at present they have introduced prohibitory laws, which they did not before possess, against Rinderpest; in Germany these prohibitory laws have existed during centuries. The English have only just introduced inoculation by means of cow-pox, which we have had since the commencement of this century. It has therefore not been shown that it would be desirable to imitate the example of England in any respect.

It has been stated that in the Rhine Province most lawsuits are settled by means of composition. This, in my opinion, is a bad sign. If people make up their differences in this way, it is a token that they do not expect justice from the judge. It would be far better that the lawsuit were decided by the judge according to law, than that the injured party should settle with the one who has injured him, because he knows he cannot obtain justice, or that the duration of legal proceedings will be so protracted that he refrains from claiming the redress which the law would obtain for him. This objection might also be taken to the mode of procedure in Bavaria. It is not the veterinarian part of the Bavarian law, which corresponds with that in Baden, Hesse, and Würtemberg, but the form of the legal procedure which renders the affair so difficult. It has several times been stated—how or why I cannot understand—that the general warranty obligation had been adopted in France and those countries where the "Code Civile" is in force. The French law specially refers to the customs of the country, to a very uncertain proceeding, with regard to which I point to the tables of Gohier, where they are all noted down. This was a state of things similar to that which existed in some of our own countries when each village legislated for itself. The aim of a general law was, therefore, to abolish these customs. This is likewise our object. We did not require that separate German States should have different laws, but simply that which is law in Prussia shall likewise be law in Würtemberg; that which is considered law on the Rhine shall be also law in Austria; and I beg the Assembly to judge the propositions of the Committee from this point of view, not from the special point of the country of each member, but with regard to the great advantage to be derived from Germany having one law in common. If a general law is to be drawn up, it is very easy to refer back to already existing laws, without following them strictly. Hence we employed the sketch which was made in Dresden, with the intention of framing a general law as a basis for our proposals, and with especial regard to the general redhibitory defects and their periods of warranty; but without being guided strictly by this law project.

Dr. *Adam.*—The expression of the Reporter, Dr. Hering, with regard to the opinions of some Bavarian veterinarians against the existing warranty law in Bavaria, may lead to a belief that these opinions were expressed from a desire to oppose. I believe every one has a right to express his views on institutions which are in some way connected with veterinary science.

The *Reporter.*—My remarks in respect to our colleagues from Bavaria were not intended to convey such a meaning as represented.

The *President.*—I will now proceed to put the separate motions to the vote. With regard to the verbal construction and the manner in which the points succeed each other, Professor Gerlach has submitted a modified proposal, but this does not alter the principle.

Dr. *Gerlach.*—I submitted the motion only because the construction by the Committee did not seem sufficiently clear to me.

The *Reporter.*—I do not think the preliminary introduction, sub. A and B, to the motions of the Commission ought to be put to the vote. A different principle, I believe, is concerned. Is it intended to introduce a general warranty obligation, and nothing besides? or is a special warranty law, without the general warranty obligation, desired? or lastly, shall the general warranty obligation with a special law, as the Commission has decided on, be submitted to the Assembly?

The *President.*—I shall put the principle, in accordance with the motion of the Committee, sub. C, to the vote, "that from a veterinarian point of view the retention of the general warranty obligation must be described as necessary." I beg those gentlemen who agree to the motion of the Committee to rise. (They rise.) It is adopted. The second part of the principle would be the sub. D, enumerated of special redhibitory defects and periods, besides the general warranty obligation. Gentlemen who agree to this will please to rise. This is likewise adopted. If gentlemen wish that the night-defects should be abolished, they will signify it by rising. Adopted. Now the point F has to be decided by vote, namely, that besides the general warranty obligation, a period of limitation, of at most three months' duration, is considered desirable. Gentlemen who are in favour of the adoption of this point will please to rise. The point is likewise adopted. With regard to the verbal construction, Professor Gerlach has proposed a different form. The points A, B, E he intends, as it were, as supporting that which he states as introduction. Director Gerlach, namely, states two principal axioms, 1. General warranty obligation for all defects which are not apparent at once, and which at the sale cannot be detected immediately, and which decrease the utility and the value of the animal. As reasons for this, he mentions the points A, B, E of the Committee proposal. 2. Besides the general warranty obligation, such defects are exceptionally to be stated which at the sale may have been easily overlooked, and of which the law supposes that they have existed before the sale, in consequence of which it is intended to protect the purchaser and vendor.

The *Reporter.*—I take the liberty to read the following (§ 75) from the law project of the Dresden Commission, which says exactly the same thing: "Whoever sells an article by contract remains responsible to the purchaser that the object at the time of its delivery has not such defects, which would reduce the utility or value of the same, and which would annul the contract, in accordance with the usual custom; and that likewise the defects reduce the value of the article to such an extent, that the purchaser would, had he known them, either not have bought the article at all, or for a more reduced price." This is a general principle, which we find in the Code Napoleon, and originally in the edicts of the Ædiles.

Dr. *Wüst.*—This is the first paragraph in the law of the Grand Duchy of Hesse.

The *President.*—If gentlemen desire that the original construction shall be retained, they will please to rise. (They rise.) The construction of the Committee is adopted by a majority.

Dr. *Ulrich.*—Considering that to-morrow is our last principal meeting, and that on Sunday only a short concluding meeting will take place, I beg to request the President to communicate to the Assembly the motions which still remain for deliberation, in order to enable us now to determine and select an order of the day for to-morrow and the day after, as all the motions which have been brought forward cannot be settled in the allotted time.

The *President.*—I believe I ought to put a motion to the vote, if, at our rising to-day, I should read again those motions and proposals which were read yesterday, in order to render the determination of the next order of the day possible. This would be the more necessary, as I myself am not in a position to determine the order of the day for to-morrow, as I have made it a rule to avoid selecting any communication in particular. Those subjects which cannot be settled here ought to be placed in the hands of Director Zangger, as manager of the preliminary affairs of the Third Congress. I request those gentlemen who are in favour that, at the close of the meeting to-day, I shall describe the promised lectures, and put those to the vote which are to be communicated during the present Congress, to rise. (They rise.) The motion is adopted. We will now proceed to the special debate with regard to redhibitory defects.

The *Reporter.*—After the Assembly has adopted the principle that, besides the special redhibitory defects, the general warranty obligation shall continue to exist, the desire to have a greater number of redhibitory defects ceases, and a more limited number will be found sufficient, because the other defects are contained in the general warranty obligation. It is just as easy to fix warranty periods of short duration. The motions of the Committee are as follows:—

"The species of animals for which redhibitory defects are to be introduced are: 1. Animals of the equine species; 2. cattle; 3. sheep and goats; 4. pigs.

"Ad. I. For animals of the equine species:—1. Restiveness, with a warranty period of 5 days' duration; 2. crib-biting (without regard), 7 days. (Cataract, black, or any other kind, has been omitted by a majority of votes.) Glanders, 14 days; suspicious glands, 14 days; broken-winded (without regard to seat), 14 days; ringworm, 14 days; staggers, 21 days; epilepsy and giddiness, 28 days; lunar blindness (periodical inflammation of the eyes), 28 days.

"Ad. II. For cattle:—Tubercles on the lungs and phthisis, 28 days; Pleuro-pneumonia, 42 days.

"Ad. III. For sheep and goats:—Small-pox, 7 days; itch, 14 days. (Rot was excluded by a majority of votes, because opinions materially differed with regard to the duration of the warranty period.)

"Ad. IV. For pigs:—Measles, 14 days; trichinæ, 14 days."

The species of animals for which redhibitory defects ought to be admitted must be determined next. With regard to this, there appears only a trifling difference in the until now existing laws. Some laws have admitted goats, others have excluded them. The attention of the Commission has been drawn to the fact, that the goat in many countries is an important domestic animal. For this reason, "sheep and goats" have been included. For the following species of animals, therefore, there exist redhibitory defects:—1. For animals of the equine species. (Some laws only say horses: this would exclude mules; in the Austrian law it is stated, horses and beasts of burden.) 2. Cattle, without any consideration as to sex; 3. Sheep and goats; and 4. Pigs. This corresponds so nearly with most of the laws which, until now, have been promulgated on the subject, that I believe the question may be settled without discussion.

Dr. *Fuchs.*—In a warranty law where, besides the general warranty obligation, redhibitory defects are spoken of, care should be taken that the number of these defects should be as small as possible, or the general warranty obligation would become altered in consequence. I would therefore, with regard to the species of animals, omit goats. Generally speaking, as articles of trade, they are of too trifling importance to be included amongst species of animals for which exist redhibitory defects, and very rarely will a lawsuit be brought on their account. With regard to the other animals, I have no particular objection to make, but goats I consider as of too little value.

Dr. *Gerlach.*—The principle expressed by Professor Fuchs, that by a general warranty obligation the special redhibitory defects ought to be as limited as possible, is likewise my own, and it was a subject of discussion in the Committee. I regret to note this omission in the report of the Commission. It was also discussed that the general warranty obligation should be considered as the primary and most important. I likewise miss this from the report. With regard to goats, it has been pointed out to the Committee that they are an article of lesser importance. But it was likewise stated that they are the domestic animal of the poorer classes, and that a goat is of as much value to a poor man as a cow to a richer man, therefore they were included in the list. As in some regions whole herds of goats are bought and sold, and as it would do no harm to let them remain beside sheep, I think that goats could just as well be included.

The *President.*—Does any one else desire to speak? (No one.) I request those gentlemen in favour of the species of animals proposed by the Committee—namely, sub. 3, for sheep and goats—to rise. (They rise.) The motion is adopted. We will now proceed to No. 1.

The *Reporter.*—Amongst the enumerated redhibitory defects, we have two which are in fact not diseases, but bad habits, defects of temper. We have therefore placed restiveness and crib-biting side by side, whereas they are generally separated. First, restiveness by horses has been proposed with a warranty period of five days. This defect is omitted in several laws, but in the more modern we find it again; and if I mistake not, the Commission which revised the French law of the year 1838 came to the conclusion that it was necessary to re-admit restiveness into the law. We, as members of the Commission, agreed therefore about it, that the vendor could not suffer any injury by a short warranty period, whereas on the other hand, if restiveness had not been enumerated, the purchaser would suffer in consequence. With regard to the warranty period, it is included in the newer laws; for example, in the Hessian, restiveness with eleven days; in Hanover, Saxony, and Prussia, with five days; and in Austria with thirty days. We have fixed the average duration at five days.

Dr. *Rueff.*—Gentlemen, I consider it necessary to make a few remarks with regard to restiveness. At first the question arises, How is restiveness to be defined? I do not consider it a sufficient definition to say, it is a defect of temper, or something of that sort. Generally, it is said to be the result of an evil, vicious will. But science has long ago taught us that an animal has no free will, that no action of an animal is a consequence of free will. How is it then possible to speak of an evil, vicious will? From a practical point of view it will frequently be said, it is a bad will; but how often is a person who has much to do with horses, and knows their nature, obliged to confess that this bad will is quite reasonable, more reasonable than that of man, who claims obedience from the horse. Another point which must be considered in solving the question, Is restiveness a redhibitory vice? is the examination. The examination of a restive horse is very difficult, and I believe that the majority of the gentlemen present would not run the risk of examining a restive animal. Veterinarians with technical knowledge will be obliged in this respect to invite the opinion of gentlemen with technical knowledge from other branches of science. But the decision of technical gentlemen will always vary. Give a restive horse to two equestrians, and their judgment will differ; by one the restiveness disappears, by the other it becomes more apparent; so that science will find it a difficult task to form a reliable decision in the matter. Therefore, in consideration of the examination, I must protest against the point A, if restiveness remains admitted. But a second question arises, namely, Is it really a necessity and a general desire that restiveness should be admitted? If you ask amateurs, proprietors of horses, and dealers, the majority will say, it is a great mistake to admit restiveness amongst the principal defects; it produces the most disagreeable lawsuits, and is just as often the cause of most unjust decisions. All the ideas which I have expressed, lead me to propose that the Assembly should not adopt the motion of the Committee, and that restiveness ought to be omitted from the number of the principal defects. In the event of my motion not being adopted, I suggest that the voting on this question may take place by name.

Dr. *Würzl.*—I should have been very glad if the debate on the details of this subject had been rendered unnecessary by not adopting a special law of warranty. I remained, with other gentlemen, in the minority, and I hope it will be mentioned that we did not adopt redhibitory defects, which I, at least, do not consider as such. I quite agree with the opinion expressed by the last speaker, that restiveness does not belong to these defects, and this opinion is supported by the experience of an official practice of fifteen years' duration. I have seen in Hungary and in Austria, that it is the plea of restiveness which gives to a dishonest purchaser, who has acted against his own interest and bought a horse at too high a price, an opportunity to free himself from his own trap. I am much obliged for the reduction of the time to five days; but I believe that a good but fiery animal may be made restive in less than five days. During my years of duty in Upper Austria, amongst 135 animals which were brought to me for examination, on account of redhibitory defects, I only found one with real restiveness. I employed the following method for these examinations: I kept the horse for two or three days, observed it carefully, and drove it myself; and so it happened that, during two years only one other animal was brought to me, so that the people declare openly, It is useless to bring a horse to the Land Veterinarian; he keeps it two or three days, and then the horse goes quietly. I cannot explain it, but experience teaches me that by this means most restive animals become quiet and good. I propose a motion, that the Assembly declare that restiveness should not be included amongst redhibitory defects.

Dr. *Zlámal.*—I quite agree with the two previous speakers that restiveness has not a single quality of a redhibitory defect. It can be recognised in carriage as well as saddle-horses at once, when the examination is undertaken personally. But if the buyer, not intending to keep the horse, is no horseman himself, he can easily procure a groom or coachman, who will ride or drive the horse in such a manner that it will appear restive; and therefore a great abuse of the word restiveness is possible, to the disadvantage of the vendor. But every sale or purchase is not completed personally. Restiveness, as a defect, cannot be denied; it exists as a defect, and is at times incurable. I would therefore make a distinction, and say, the buyer who has effected the purchase personally has no right to institute legal proceedings on account of restiveness. It is different when the purchase is effected by letter; when I say I want the horse and it is sent to me, and I find it restive, then of course it becomes a question whether I am obliged to keep it. This certainly belongs to the general law of warranty; but, as we have admitted restiveness as a redhibitory vice, it is difficult to employ the general law of warranty. Therefore would I construct the resolution thus: A purchase by word of honour may be annulled within twenty-four hours after delivery; but a purchase personally completed excludes all and every warranty period with regard to restiveness.

Professor *Fuchs.*—I quite agree with the motion of Professor Rueff, and consider the arguments against the admission of restiveness as a redhibitory defect stated by the other speakers as correct. But I wish to make one observation. The Reporter has mentioned that, in former laws of warranty restiveness has been named, but that in more modern laws it has been omitted. He has enumerated several of these, but not the latest, which do not mention restiveness. Restiveness is not to be found in the most modern laws.

Dr. *Reynal* was opposed to the admission of restiveness as redhibitory vice.

The *Reporter.*—Amongst the different redhibitory defects, restiveness has led to an expression of opinion contrary to our own. Professor Fuchs has stated that in the new laws of Baden, Würtemberg, and Bavaria, restiveness has been omitted. I know the cause of this. Restiveness was omitted when the Government of Baden, previous to the law being promulgated, consulted competent men, equestrians by profession, on whose advice they acted. Not to injure the agreement, we in Würtemberg likewise omitted restiveness. This is the cause. I do not think that a horse could be made so restive in five days that it could not be cured again in a short time. With regard to the assertion that restiveness does not possess the qualities of a redhibitory defect, I beg to differ. It cannot be known if a horse which is paraded before an intending buyer, is really fit for the required purpose. This is already mentioned in the General Article. Restiveness, therefore, is a hidden defect, and in this respect, may be admitted amongst redhibitory vices. I must leave the decision on this subject to the Assembly, as opinions differ so greatly.

The *President.*—When I put the question to the vote, I shall separate the admissibility of restiveness from the warranty period. I request those gentlemen who desire to have restiveness of animals of the equine species admitted amongst redhibitory vices, to rise. (They rise.) It is the minority. I shall try the counter-vote. (They rise.) Restiveness must, therefore, be omitted; a division on the warranty period is now unnecessary.

The *Reporter.*—"Crib-biting," likewise, was not considered as a disease, but as a bad habit. Nevertheless, the utility and value of the animal suffers in consequence. This is the cause that crib-biting is admitted partly with the description, "without signs of wearing out on the teeth," and partly without any description, into most warranty laws, and especially into the more modern ones. We introduced the addition "without difference," as it is generally very difficult to decide if the teeth are worn off a little only or to a greater extent, as there are horses, without being crib-biters, which have filed teeth. It has been said the purchaser must very carefully examine the horse, and he will soon find out if it is a crib-biter or not. But this cannot apply to all cases, and the purchaser, in my opinion, will suffer no injury if crib-biting is considered a redhibitory vice.

Dr. *Reynal* did not oppose its admission, but would wish to have a more accurate verbal construction.

Dr. *Zlámal.*—I also feel some apprehension with regard to this designation; if crib-biting is to be considered a redhibitory vice it ought to be more accurately designated. It is here stated, without distinction—with or without mark on the teeth. But I believe that those crib-biters which rub off the edges ought to be made subject to redhibitory vices. Every one before purchasing tries to find out how old a horse is, and if the teeth are regularly worn off or not. This crib-biting, with setting up and wearing off of teeth, must drop, because it is an external defect. With regard to the other crib-biters, it is not only disagreeable to have such a horse in the stable, but it is also detrimental, because all the other horses gradually acquire the habit, and serious consequences ensue. In this respect, I would be in favour of the admission of crib-biting, but not with a warranty period of seven days' duration. During this time one horse learns the vice from another; of this I am convinced, and experience has proved it. Whoever has a horse twice in his stable, and does not observe it crib-biting, may keep it. If it has not been crib-biting during two days it will not do it afterwards; although it may acquire the habit if it is placed in a stable with other horses which are crib-biters. I am, therefore, of opinion that crib-biting with mark ought to be excluded, but that the other kinds, with a warranty period of forty-eight hours, should be admitted.

Dr. *Fuchs.*—The Reporter has stated that there is a great similarity between crib-biting and restiveness, and he doubtless intended—so it appeared to me—should crib-biting be admitted, to level a reproach against the former resolution. But there exists no such similarity (cries: "No"), because crib-biting cannot be taught to a horse in a short time, and I do not think it could be done at all. To recognise crib-biting we require no professional men, no groom or coachman. This alone shows a great difference; and if the Reporter has mentioned that horses which are not crib-biters wear their teeth off likewise, merely in support of the assertion of crib-biting without difference—the crib-biting with and without the wearing off of the teeth—I agree to it. But as soon as the wearing off of teeth is remarked, it ought to create a suspicion that crib-biting is going on, and the person, before buying the horse, will ascertain if this wearing off is caused by crib-biting or by something else. I therefore agree with the last speaker, that if crib-biting is to be admitted at all, it ought to be that without the wearing off of the teeth.

Dr. *Husson* would desire to have crib-biting entirely excluded.

Dr. *Stichel.*—Gentlemen; I am in favour of the admission of crib-biting without difference. In Germany, where mangers of stone are now introduced, the teeth may become worn off without crib-biting being the cause. By us, in the kingdom of Poland and in Russia, a great number of military horses are fed from nose-bags; no wearing off of the teeth is observable, and nevertheless they are crib-biters.

Dr. *Wüst.*—If Professor Zlámal is of opinion that the warranty period by crib-biting should be limited to twenty-four hours (cries: "Forty-eight") or forty-eight hours, I must oppose him. I desire at least seven or eight days for this purpose. All who have transported many horses know that crib-biting often commences not before the eighth or ninth day, but that a horse often changes proprietors three times before this vice becomes known. It is often found that stallions when they are away from their own stable leave off the habit, and as soon as they return they are again crib-biters.

Dr. *Zlámal.*—These observations deserve great consideration, and in my introductory remarks I took the liberty to name a certain time for these warranty periods. Therefore did I say, purchases by word of honour or by agent or letter should, with regard to restiveness, necessitate a warranty period of two days, or, if required, of one day, from the time of delivery. I desire it to be therefore understood that, with regard to the defects mentioned in the list, that the warranty period should commence from the day of delivery. If the defect is not discovered during the transport, it ought, if it really exists, not to be used to the injury of the purchaser, even if he detects it later. The previous speaker in asserting that horses, if they are fed from stone mangers, wear their teeth off the same as crib-biters, has not damaged the correctness of my statement. But whoever sees these worn and ground teeth in a horse, and does not make certain conditions with regard to the vice, may keep the horse; because, when I see worn-off teeth in a horse, I shall always say, "This seems to me to be a crib-biter," and I should, if necessary, ask for a month's time. To establish for this purpose a separate redhibitory defect does not appear necessary.

Dr. *Gerlach* (to whom, as a member of the Committee, the Reporter resigned his right to speak in conclusion).—I must state at once that, with regard to this point, I do not acknowledge a difference between the wearing off and the not wearing off. This would occasion divisions and subdivisions which could not be justifiable. The wearing off happens sometimes to such an extent that the teeth appear quite short, and in that case not even a suspicion can be entertained. I have no objection to the entire exclusion of crib-biting, in consideration that restiveness is also excluded; and with regard to the general warranty obligation, although restiveness is a far more important defect. But if crib-biting is admitted, I am in favour that no difference be made, and that the warranty period of seven days be not further reduced. Crib-biting, as previously stated, does not appear on the first day, but often when the purchaser is transporting the animal at his own expense.

The *President.*—I believe I may now bring this point to the vote, namely, the general question first, if crib-biting is to be admitted at all. (Assent.) I request those gentlemen who are in favour of the admission of crib-biting as a redhibitory vice to rise. (They rise.) The result is not quite certain. I request those gentlemen who are in favour of the admission of crib-biting without difference, in accordance with the motion of the Committee, to rise. (They rise.) It is the minority. I now request those gentlemen who are in favour of the admission of crib-biting without the wearing off of teeth to rise. (They rise.) It is again the minority, the entire motion is therefore rejected.

Dr. *Rawitsch.*—As it is getting rather late, I beg to propose the adjournment of to-day's meeting, determining before doing so the subjects for deliberation to-morrow.

The *President.*—Is the proposal for the close of to-day's debates adopted? Gentlemen who desire it will please to rise. (They rise.) It is adopted. Before I proceed, in accordance with a previously adopted resolution, to read again the promises of gentlemen with regard to proposals and lectures which I communicated to the Assembly yesterday, I must state that I intend to place, under all circumstances, the continuance of to-day's deliberation on the fourth subject of the programme on the order of the day for to-morrow; also the communications of gentlemen who have acquired experiences with regard to the results of the First International Congress of Veterinary Surgeons. I shall now submit to you the contents of each separate motion, and I beg of you to decide by vote which shall be communicated during the assembling of the present Congress, and which shall be handed over to Director Zangger for consideration, with regard to their being brought before the next Congress. (Reads the communications verbally, the same as in the fourth meeting.)

Dr. *Rawitsch.*—Amongst these questions, not to mention the proposal by Professor Fuchs, I believe it would be considered most important by the Assembly to hear the communications about Siberian Plague, which occasioned during last year such terrible ravages in Russia that the Governments of other States were terror-stricken, and asked by telegraph of the Government at St. Petersburg if it were really true that the Siberian Plague was prevalent to such terrible extent amongst human beings. I believe it would be highly interesting to receive some information on the subject. The answering of the first question from Professor Reynal, with regard to the possibility of transferring Rinderpest to goats and sheep, would not require much time and could likewise be placed on the order of the day. The second question, if Rinderpest is originated primarily in Russia, is, I am afraid, not capable of solution, and therefore I think it advisable to pass it by. With reference to the inoculation question, I can inform the Assembly that the St. Petersburg Committee has published already, in the Russian language, the results of all inoculations which have been performed in Russia since 1852, and that they will be translated in the course of two or three months into the French and probably German languages, when the Assembly will be in possession of materials to form a decision on the subject; at present there are only a few persons able to speak about it. I believe, therefore, that, with the exception of the lecture by Professor Jessen, the question of Rinderpest should stand adjourned to the next Congress.

Dr. *Gerlach.*—I likewise propose that, in consideration of time, the deliberations of the present Congress should be limited to the inoculation for Rinderpest and to the Siberian Plague. The consideration of the other subjects would require too much time, and we could not discuss them as they deserve, especially that with regard to Pleuro-pneumonia. I believe we would act in the interests of science if we adjourn their discussion to the next Congress, when we shall have gained more experience and shall be better able to grant them the requisite attention.

Dr. *Jessen.*—If gentlemen should desire to hear my communication on Rinderpest, I beg to remark that its reading would not take more than a quarter of an hour.

The *President.*—I request those gentlemen who are in favour that during the present meeting of the Congress, besides the reports with regard to the results which were produced by the first Congress, only the communications which were promised by Professors Unterberger and Rawitsch on the Siberian Plague, and the communications by Professor Jessen on inoculation for Rinderpest, should be brought before the Assembly, to rise. (They rise.) It is adopted. On the order of the day for to-morrow we have, therefore—Continuation of the debates on the fourth subject of the programme; Communications of gentlemen with regard to results produced by the resolutions of the first Congress; and lastly, Lectures on the Siberian Plague. The meeting stands adjourned till to-morrow.

SIXTH MEETING, 26TH AUGUST, 1865.

President, Dr. RÖLL; *Secretaries*, Drs. FORSTER and PROBSTMAYR.

The *Secretary* read the minutes of the previous meeting, which were adopted. The *President* then acknowledged the receipt of several pamphlets and veterinary implements, after which he requested the Assembly to take up the consideration of the fourth subject of the programme.

The *Reporter*.—We arrived in our deliberations yesterday as far as Cataract. It is well known that several forms of cataract are extant, of which only one—namely, the black cataract—has been admitted in most laws as a redhibitory defect, because it is difficult to recognise, difficult to cure, and exerts great influence on the utility of the animal. It was proposed in the Committee to admit all modifications of cataract under the title "cataract-defects." If the different existing laws are compared, cataract will be found to appear under this heading only in the Hanoverian law. I believe, therefore, if the admittance of cataract is decided on, care ought to be taken to make a distinction between the black cataract, which is admitted in most laws with a general period of eight days, and the grey cataract, which may be detected easier, and which has been nowhere admitted as a redhibitory defect.

Dr. *Fuchs*.—Considering that the black cataract cannot—or, at all events, not at once—be detected by non-professional men, I would be in favour of its admission; and in consideration also that it possesses all qualifications which constitute a defect, as a redhibitory defect. But it is very difficult to determine with regard to it a period of warranty, because it may become developed in a very short time. If it is therefore intended to admit black cataract as a redhibitory defect, I would be in favour of a very short period of warranty; especially as, in consequence of the possibility of its being originated over-night, it remains according to most laws with the vendor to prove that the horse was without the defect previous to the sale, or rather the delivery.

Dr. *Gerlach.*—With regard to the general warranty obligation, I am in favour that all forms of cataract should be omitted. If the black cataract has always been preferred, I consider this very wrong; and if it is proposed to-day that it ought to be admitted alone, I cannot agree to that, because it becomes too quickly developed to be considered a redhibitory defect. The consideration was always mentioned that it cannot be detected; but if it is sufficiently developed and the animal becomes blind, it can soon be discovered. But the grey cataract has, in my opinion unjustly, been always excluded. If by grey-cataract is understood a developed cloudiness of the crystal-lens, then, of course, any one may detect it; but if it is viewed as simply a partial dimness, which may in time become general, then its detection is not so easy, and it only becomes apparent when it is fully developed. The grey cataract never originates as quickly as the black. If the grey cataract has settled on one eye, the loss of the other may likewise be expected. The black cataract appears more frequently than the grey, on one eye likewise, as I know from experience. I would, therefore, if the black cataract is admitted, decidedly desire the admission of the grey.

Dr. *Mussgnug* (Augsburg).—Gentlemen; the law of warranty which I should desire to propose would be very short. My care would only extend to general, not to individual cases. The individual may protect himself: he enters into a personal agreement, comes to a personal understanding with regard to the sale which he effects; therefore let the buyer, in contradistinction to the vendor, take care of himself. My care extends to the general welfare, and I am therefore in favour that only contagious diseases should be admitted into the law of warranty; even these may prove injurious to individuals. Somebody, for example, possesses a horse suffering from glanders; he will not kill it, but tries to sell it. I am therefore only in favour of the admission of contagious diseases.

Dr. *Zlámal.*—I would have had no objections whatever, if the majority of the Assembly had remained satisfied with the general warranty obligation. But, as we have concerned ourselves about special redhibitory defects, and have decided on some of them, and after we ourselves have determined the criterion, which a defect of this description must possess, we cannot now shrink from them. If there exists a redhibitory defect, which possesses all the necessary qualifications, this is the black cataract. I would not know how to recognise it in any other manner, especially if the blindness exists only on one eye, than by employing the eye-reflector, and I scarcely think this can be introduced into stables. Every one will remember what difficulties are to be overcome, in order to determine the existence of this defect. At all events I am in favour of the admission of black cataract amongst redhibitory defects. Why the grey cataract is proposed for admission I do not know: it belongs to the visible defects; a slight dimness does no harm, because the animal is still able to see and its utility is not decreased. Of the green cataract I do not intend to speak. I quite agree to the proposition that the warranty period for the black cataract should be as short as possible, and not, as is at present the case in my country, last a month: two or three days are sufficient to enable any purchaser to try his coach or saddle horse and detect the defect.

Dr. *Pillwax.*—I am likewise in favour of the admission of the black cataract as a redhibitory defect: it possesses beyond doubt all the requisite qualifications. It is quite impossible that a non-professional man should detect it—not alone when its development has just commenced and exists only in one eye, but even when its development has considerably progressed. We all know that even a veterinary surgeon must employ increased vigilance to discover the presence of black cataract, and if it has once settled on one eye; we know likewise that in cases where no influence has been exerted on one eye, in consequence of which the disease originated, that the animal will soon lose the sight of the other eye; and it is an established fact that a horse, especially a saddle-horse, when it is half-blind, cannot be depended on. Only when harnessed together with a horse which is able to see, is it of any use. But when the cataract is completely developed the horse is utterly useless. This disease, therefore, possesses all the qualifications of a redhibitory defect. In cases of grey cataract the circumstances are different. At the commencement it is very difficult for a non-professional man to detect its presence; but if only a few cataract spots are apparent, it is a sign of the commencement of the disease, and if the owner but regards the animal with a slight amount of attention he will soon be able to discover the cataract, because such an eye presents a different appearance to one which is entirely unclouded. The owner will at least be induced, if he possesses no further knowledge, to consult a veterinary surgeon in order to obtain information. In cases of black cataract this is not the case: no change is apparent in the eye, because the trifling change with regard to the enlargement of the pupil cannot be discovered; and thus it may happen that the disease is entirely overlooked, and one may buy a horse which is quite useless. The reasons which I have just stated induce me to vote in favour of the black cataract being retained as a redhibitory defect. But I am likewise of opinion that the still existing warranty period of thirty days is too long, because the disease may become developed in a far shorter period. I therefore propose that a term of seven days be decided on.

Dr. *Seifmann.*—That the black cataract ought to belong to the redhibitory defects no one can deny, as it is quite correct that the disease cannot be readily discovered either by owners of horses or professional men, and only after careful observation is a decision possible. But the grey cataract, when completely developed, can be discovered easily enough, and ought, therefore, not to be considered as a redhibitory defect. But when only a slight dimness is apparent in the centre of the eye, it will often be found difficult, especially by owners, to determine the existence of the grey cataract. It has been stated that in such cases it cannot be considered as a redhibitory defect, because such a cataract cannot decrease the utility of the animal. This, in my opinion, is not the case. A horse entirely blind may be driven, and the coachman knows that he has to proceed carefully; but to drive a horse which can see a little is very difficult and dangerous, because many objects which the horse cannot see distinctly will frighten it. From this point of view it appears to me that the grey cataract ought likewise to be admitted as a redhibitory defect; but only when its development has just commenced. It ought likewise to be added, with regard to the grey as well as the black cataract, that the diseases of the eye which ought to be admitted shall be considered as redhibitory defects, even if they are only settled at the time on one eye only. The grey cataract likewise commences on one eye and extends to the other. If this is not stated accurately it may occasion serious disputes.

Dr. *Frank.*—That which has been mentioned with regard to the different forms of cataract applies likewise to the green cataract; and I am astonished it has not been mentioned before, because amongst the different forms which the disease assumes it is most difficult to discover, and appears very often. If, therefore, the other forms of cataract are admitted as redhibitory defects, I would propose that the law should likewise extend to the green cataract with a warranty period of seven days. It is, as I stated before, most difficult to detect, and can nearly always be only discovered in darkness; it becomes developed very slowly, and, like all varieties of cataract, decreases the utility of the horse.

Dr. *Zwickl.*—I beg permission to relate one case. I had been in practice already many years, and an instance came under my notice where a horse was apparently perfectly healthy on one eye. The animal was intended for cavalry service, and a general officer, as well as myself and several others, had examined the horse without being able to detect the slightest difference in the appearance of one eye from the other, although it was afterwards discovered one eye was perfectly healthy and on the other was the black cataract. Therefore cases may occur which will necessitate great attention on the part of veterinarians before the presence of black cataract can be discovered.

The *Reporter.*—Nearly all the speakers were of opinion that the black cataract possesses the necessary qualifications of a redhibitory defect, and ought, therefore, to be retained as such. Now, we have to decide whether the grey and green cataract shall also be admitted. In accordance with my personal experience, it is apparent that the black cataract occurs, in opposition to the experience of my colleague Gerlach, more frequently on both eyes than on one: it generally is caused by apoplexy. The only circumstance which might be mentioned against the admission of black cataract is, that it often makes its appearance suddenly. It is often suddenly discovered after an operation has been performed on some other part of the body, and then it generally appears on both eyes. The grey cataract originates, as a rule, only on one eye, which does not decrease the utility of the animal to such an extent. If the grey cataract is admitted as a redhibitory defect, it could only be at its commencement, when cataract-spots appear, because the fully-developed disease does not possess the qualities and character of a redhibitory defect. It is not usual to include a part of the duration of a disease in a law, but the name is stated, and is then considered as a redhibitory defect from its commencement to its close. It is likewise difficult to admit the grey cataract as a redhibitory defect, because in one Article of the Law Project (Article 177) there is stated (which is generally found in all laws): "According to the Article 175, the vendor is no longer responsible if the buyer has known the existence of the defects at the time the contract was completed, or"—and this is most important—"if he could have discovered them by using the usual care, without reference if they could have been discovered by everybody, or only by the buyer, in consequence of his being a professional man." The law does not require the buyer to be a professional man; but when common care only was necessary to discover the defects, the warranty obligation ceased. Therefore ought the purchaser to be very careful in such cases. Not to protract the subject too much, it would be best to decide by vote, if black cataract is to be admitted as a redhibitory vice.

The *President*.—If gentlemen have no objections, the question could be put to the vote in the most general construction: Is cataract to be considered as a redhibitory defect? Gentlemen who think it ought will please to rise. (They rise.) It is adopted by a very decided majority. Secondly, shall black cataract be considered as a redhibitory defect? Gentlemen who are in favour of it will please to rise. (They rise.) Adopted by a large majority. Is grey cataract to be admitted as a redhibitory defect? Gentlemen who think so will please to rise. (They rise.) It is a minority. Is the green cataract to be admitted as a redhibitory defect? Gentlemen in favour of it will please to rise. (They rise.) It is likewise a minority. Black cataract is now admitted as a redhibitory defect, and the other two forms have been rejected. A motion ought now to be proposed with regard to the warranty period. It appears from the speeches of gentlemen that a majority are in favour of the adoption of a shorter term.

The *Reporter.*—The duration of the warranty period differs greatly in the various laws. The two oldest have a period of twenty-eight days' duration; the more modern ones have eight, Saxony five, Hanover five days. I believe the debate will revolve round two periods—either from five to eight days, or if we intend to remain by weeks, five to seven days.

Dr. *Hertwig.*—Gentlemen; as you all well know, black cataract is to be ascribed to various morbid conditions. I do not think that twenty-eight days are ever required for its development, if it appears as disease of the eyes alone. It may be produced very quickly; a single strong concussion of the pupil will cause it, therefore a very short term ought to be fixed for this redhibitory defect. I believe that a period of from five to eight days would be amply sufficient.

Dr. *Pillwax.*—I believe we could just as well remain by the division of weeks, and decide on seven days.

The *President.*—Gentlemen who are in favour of a warranty period of seven days, in reference to black cataract, will please to rise. (They rise.) It is adopted.

The *Reporter.*—We now come to glanders, suspicious strangles, and ringworm. Much which might be said with regard to glanders is applicable to the other two defects. They are named separately, although they are intimately associated with each other. Glanders is a redhibitory defect, which is found mentioned in all laws. In the most ancient times the necessity was felt to consider glanders as a redhibitory defect, and the principal question in connexion with it was to fix the duration of the warranty period. This is a subject upon which a great deal could be said; but as it is so generally known I pass it by. I believe we might at once proceed to put it to the vote.

Dr. *Rawitsch.*—I only intend to observe with regard to glanders that a warranty period of fourteen days' duration is too long. All gentlemen here present know that glanders can be produced within three, four, or eight days, by means of infection. Therefore, any one intending to get rid of a newly-bought horse may have it infected with glanders, and I do not see why a period of fourteen days' duration is required.

Dr. *Husson* suggested, for the protection of the vendor, an addition which he took from the Belgian law: "If the animal, since its delivery, has not been in contact with other animals suffering from the disease."

Dr. *Rawitsch.*—I withdraw my motion provided that of Professor Husson is adopted.

Dr. *Jessen.*—For glanders, suspicious strangles, and ringworm, a warranty period of fourteen days has been fixed, which I consider too short. With regard to glanders, fourteen days, and even less, will be quite sufficient to note the appearance of glanders in animals which have been infected by means of inoculation. But we do not know whether there exists another mode of infection which might cause an incubation period of a longer duration. With regard to suspicious strangles, I would draw attention to the fact that no veterinary surgeon ever gets a horse to cure, the disease of which he is able to ascertain at once as suspicious strangles. It is doubtful whether a horse which arrives with glanders could be considered as suspicious after the expiration of fourteen days. The same applies to ringworm. I believe, therefore, that the fourteen days ought to be prolonged.

Dr. *Fuchs.*—I beg leave to make a formal observation. In the motion are mentioned glanders and ringworm. It is well known that the appellation "worm" is ambiguous. To denominate it "ringworm" would certainly be most accurate; but as glanders and ringworm are, as was already previously stated by the Reporter, essentially the same disease, I would propose to say, glanderous disease of worms. With regard to the suspicious strangles, I would not select that name. The existence of a suspicious gland is still disputed, and this disputation is justifiable, as glanders being a specific disease, cannot become developed from the gland. I would, therefore, not select this name, but would prefer to denominate it glanderous diseases of worms.

Dr. *Reich.*—I propose that the Assembly adopt the warranty period submitted by the Committee. The fact that other diseases exist which have a liquid discharge should not be lost sight of; for example, the mild form of carbuncles. There are also other diseases, follicular abscesses, &c., where the produce of the disease is absorbed by the lymph-vessels, and a swelling of the glands is the consequence.

Dr. *Zlámal.*—With reference to the warranty period, I quite agree with the last speaker. But I should wish to have especial importance attached to the observation of Professor Fuchs. The appellations are, in reality, not of a scientific character; I would rather say glandular-worm, instead of worm, in order to describe to a certain extent the disease; especially suspicion of glanders, instead of suspected glands or strangles.

Dr. *Tscherning.*—I beg to remark that in Denmark we treat suspected strangles like glandular worm.

Dr. *Zangger.*—I will support the motion of the Committee. Against the term glanders I believe there is no objection, neither is there against ringworm. Our debate revolves, therefore, round suspected glands or strangles. If we do not consider suspected strangles as a redhibitory defect, there are many doubtful cases by which the animal in question will have to be kept weeks and months, which occasions expenses. As, therefore, the animal which is already suffering from a suspicion of strangles would not be brought into the market, in order to avoid protracted disputes, it would be better to retain the old appellation of suspected gland or strangles. I think the name better than "suspected glanders."

Dr. *Satory.*—I must protest against the adoption of the short term of fourteen days with regard to glanders, suspected strangles, and ringworm, and beg to propose that the period should be extended to thirty days; because I believe I am able to justify this, without mentioning many other cases, by a case which occurred very recently. Last year glanders had been spread in Brünn, in consequence of the ignorance and concealment of a farrier, to such an extent that only the killing of seventeen horses within three months rendered the suppression of the disease possible, and a careful disinfection prevented its reappearance. A short warranty period does not protect the purchaser against pecuniary losses, neither is he protected against the danger of having his other horses infected, in consequence of his buying an already infected animal; the fixing of a short period of warranty ought therefore to be avoided.

Dr. *Seifmann.*—The question has been raised, if the phrase suspicion of glanders, or suspected glands, ought to be employed. The disease intended to be described by this designation has been admitted into all languages, into our language it is translated literally. Neither of the two names appears to me quite correct; but as we do not wish to offend our preceptors by introducing new names, I propose to name the disease, the so-called suspected gland.

The *Reporter.*—It may be objected to Professor Rawitsch's remark, that the warranty period is too long, that the purchaser may infect the horse to get rid of it, and that if he does so the disease will probably not appear during the period of warranty, but later, and he, of course, will then be the injured party. If attempts are made to infect with glanders, it will be seen that the disease does not appear before weeks have passed. It would therefore be a great risk for a purchaser to infect a horse with the virus of glanders in order to return it.

Professor *Husson* said the French law ordains, that in case an animal with a contagious disorder is to be returned, the warranty obligation ceases, if it can be proved that during the warranty period the animal had been in contact with others suffering from the disease. This is a very correct and natural measure. It is stated in our law in a few words: "The presumption that the horse, if during the period of warranty a redhibitory defect appears, has had already this defect before the sale remains in force, according to the expression of the law, until the contrary has been proved." If, therefore, the vendor is able to prove that the horse has been infected after its delivery, his responsibility ceases. The question therefore is, if glanders are to be admitted, and how long the period of warranty is to last.

The *President.*—Is "glanders" admitted as a redhibitory defect? Gentlemen who are in favour of it will rise. (They rise.) The motion is adopted.

Dr. *Fuchs.*—I beg to observe that I consider it better to put the formal motion first to the vote.

The *President.*—I am afraid we could not express it differently. Every peasant, who possesses a horse, knows the meaning of the expressions "ringworm and glanders." We have in medicine and veterinary science names of diseases which date from ancient times, and in their application we have only to take care to connect them with the correct comprehension; as a proof I may mention the old names of skin and hoof diseases, &c. As glanders has been admitted as a redhibitory defect, we have now to consider the duration of the warranty period. Those gentlemen who are in favour that this period should last fourteen days will please to rise. (They rise.) It is adopted by a large majority. The next point is, suspected glands.

The *Reporter.*—The expression, suspected glands, only appears in modern times. In the older laws it is not mentioned. The suspected gland is, as it were, an addition to glanders; in admitting it into the law we extend the warranty period for glanders, and thus satisfy the demand of Professor Jessen, who desires a longer warranty period at the commencement, as suspected gland, and later as glanders. Cases sometimes occur when it cannot be decided whether a horse is really glanderous, and a case of this description is far more dangerous, than one in which it is ascertained the animal is actually suffering from glanders. The expression "suspected gland" leaves much to be wished for. But laws are made for the people, and expressions must be used which the people can understand. If we ventured to use scientific terms we would everywhere meet with opposition. The veterinary surgeon knows what to understand by suspected gland, and in case of necessity instructions must be published for the correct application of the law, so that all doubts may be removed. No matter if isolated cases of a doubful character occur, this cannot be prevented. It has been proposed that the warranty period for suspected gland shall be fourteen days. The Hanoverian law, and that of Saxony, fix it at fifteen days; Austria, likewise, has fifteen days. The question must again be separated in two parts; namely, is the disease to be admitted, and if so, with what period of warranty.

The *President.*—The subject has already been discussed during the deliberations on glanders. I request those gentlemen who desire that suspected gland shall be considered as a redhibitory defect, to rise. (They rise.) It is the majority. Those gentlemen who agree to a warranty period of fourteen days, as proposed by the Committee, will please to rise. (They rise.) It is adopted.

Dr. *Fuchs.*—I proposed a motion which was supported, and I think it ought to be put to the vote. The motion I submitted was supported by Professor Zlámal.

The *President.*—I beg to put the motion of Professor Fuchs, namely, to make use of the expression "glandular diseases of worms," to the vote. Gentlemen who are in favour of its adoption will please to rise. Seven gentlemen only agree to it.

The *Reporter.*—We now proceed to ringworm. It has been remarked that the word "worm" is not a fitting term. This is quite correct, and I must state that, in accordance with the motion of the Committee, it must stand "ringworm." As it was necessary to print the motions of the Committee, my manuscript was given up for that purpose, and to the haste with which the publication was conducted, is to be attributed the cause that the expression had not been altered. In accordance with the motion of the Committee, the expression is "ringworm."

Dr. *Gerlach.*—I protest against the expression "ringworm," and propose instead, "worm-disease."

The *President.*—Does any one else wish to speak? (No one.) I shall now proceed to put the different expressions to the vote. Gentlemen who desire that the word "worm" should be used will please to rise. (They rise.) It is the minority. I request gentlemen who wish to have the expression "ringworm" adopted, to rise. (They rise.) It is the majority; the expression "ringworm" is therefore selected.

The *Reporter.*—We now come to the warranty period; its duration is fourteen or fifteen days; only in older laws is a longer period considered necessary. Austria has thirty, Switzerland twenty, but France only nine days. The motion of the Committee is that the duration of the warranty period be fixed at fourteen days.

The *President.*—I shall put the motion to the vote. Is the warranty period with regard to ringworm to be fixed at fourteen days? Those gentlemen who desire this will please to rise. (They rise.) It is adopted. Professor Husson has expressed a desire that to these three diseases should be added a portion of the Belgian law, namely, "If the animal, since it was delivered to the purchaser, has not been in contact with other animals which were suffering from the disease." Those gentlemen who are in favour of the motion of Professor Husson will please to rise. (They rise.) The motion is rejected.

The *Reporter.*—The next point is the broken wind. We have used this expression purposely, although objections may be raised, because "broken wind" is the expression more commonly used. The Committee agree to propose "broken wind" without regard to the seat as a redhibitory defect, although some laws make a distinction between the common broken wind and wheezing. Others have not made this distinction, and doubts have been raised if whistling should be considered as a redhibitory defect. To evade these doubts we have selected dyspnœa or impaired respiration without regard to the seat.

Dr. *Fuchs.*—It is here stated "without regard to the seat of the dyspnœa." With this, it is probably intended to express as was previously observed, that roaring which may have its seat in the respiration organs shall be included. I have to state, with respect to the former, that "broken wind," has always its seat in the organs of respiration. But the internal causes which produce these appearances, have their seat in different parts of the body; for this reason I would prefer to say, "without regard to the seat of the internal causes of broken wind."

The *Reporter.*—The Committee proposes the admission of dyspnœa, with the addition of "without regard to the seat." The amendment of Professor Fuchs, "without regard to the seat of the internal causes," seems to intimate that there are also external causes. But this is a subject which requires first a more careful investigation.

The *President.*—Are there any objections to the expression dyspnœa? Those gentlemen who wish to have the dyspnœa, without regard to seat, admitted as a redhibitory defect, will please to rise. (They rise.) The motion is adopted.

Dr. *Fuchs.*—I would wish to have added to it in parenthesis "roaring."

The *President.*—Those gentlemen who desire that the general expression "dyspnœa," should include likewise "roaring," will please to rise. (They rise.) It is adopted by a majority. Now, we have only to fix the number of days.

The *Reporter.*—Amongst all redhibitory defects there is none which has so uniform a warranty period as the disease in question. We find everywhere a duration of fourteen or fifteen days, with the exception of France where nine days, and Prussia where twenty-eight days have been determined. As we have adopted the division by weeks as a principle, and as the Dresden Commission has proposed fourteen days, the Committee agreed to likewise propose a period of warranty of fourteen days' duration for this disease.

The *President.*—I shall put the motion of the Committee to the vote. Gentlemen who desire the adoption of a warranty period of fourteen days' duration for this defect, will please to rise. (They rise.) It is adopted.

The *Reporter.*—Staggers (Dummkoller) is a redhibitory defect, which has been everywhere admitted, although often only under the name of "furious staggers" (Koller). Here likewise we have two forms, which have often been mentioned separately, and have thus been admitted into other laws. Some have simply used "staggers" (Koller), others have admitted only one of the two forms, namely, that which until now was described as the silent or dull staggers (Dummkoller), and that which is designated furious staggers (Koller). Herein is contained a great difference. I believe it would be advisable to use the more general expression. The Commission therefore proposed (silent) staggers (Dummkoller), and intended to convey by this appellation the chronic form of the disease. What ought to be understood by furious staggers is still partly doubtful; some consider the (silent) staggers as such, because it causes at times attacks of furious madness; others consider it as a more acute form, which according to its character ought not to be included in redhibitory defects. Cases will certainly occur where it will be very difficult to decide at once. The Committee proposes to admit (silent) staggers amongst the number of redhibitory defects; upon this there can scarcely be any difference of opinion. Perhaps the designation may be made the subject of further deliberation.

Dr. *Zlámal.*—The designation (silent) staggers (Dummkoller) has already given rise to many misunderstandings, and will do the same I believe in future; so that if a veterinary surgeon has to give a certificate, and is not guided by the custom of the country, or does not add (silent) staggers, because he has seen the animal in a state of furious madness, the judge will not accept the certificate. Under these circumstances I would not say (silent) staggers, because this excludes all other forms of the disease, but would use the more general word "staggers."

Dr. *Fuchs.*—I support this proposition.

Dr. *Gerlach.*—The word "staggers" has given rise to much confusion amongst professional men, and has led to long and expensive lawsuits, therefore its use ought to be avoided. The collective name "staggers" is employed for all diseases of the brain, and inflammation of the brain; if it is employed for all these it will be found difficult to describe by it a particular form of brain disease. The form which has a chronic course is designated with the usual name of "(silent) staggers," and I believe, from considerations of expediency, we would do well to retain the use of this name. I would abolish the use of the word "staggers" entirely, and adopt in its stead "chronic dropsy of the brain;" but I fear this phrase is too scientific, and on this account I am in favour of (silent) staggers.

Dr. *Hertwig.*—I will support this view of the question.

Dr. *Husson* proposed the close of the debate.

The *President.*—Are there any objections against the debate being brought to a close? (None.)

The *Reporter.*—The designation (silent) staggers seems to me, if an addition is at all intended to be made to the general expression, most fit. I therefore propose that this redhibitory defect is put to the vote under this designation, in accordance with the motion of the Committee.

The *President.*—I put the motion of the Committee to the vote. Those gentlemen who desire to have (silent) staggers admitted amongst the number of redhibitory defects will please to rise. (They rise.) It is admitted.

The *Reporter.*—The warranty period of (silent) staggers varies between fifteen and thirty days. The more modern laws generally order a duration of twenty-one days; and this period is sufficient to discover the staggers, and serves to protect the vendor should a horse get the disease during the warranty period. There had been proposed formerly fourteen days; but the other view gained ground, and in the more modern laws twenty-one days were adopted. It has been mentioned several times that the laws of Würtemberg, Baden, and Hesse, rest on the same foundation. With regard to the original project, Baden and Würtemberg were agreed; but, from political causes, Hesse deviated from this agreement, and fixed the duration of the warranty period for (silent) staggers at twenty-eight days. The Committee, as previously stated, proposes a duration of twenty-one days.

Dr. *Weber.*—I consider twenty-one days too long a period, and request the Assembly to reduce it to fourteen days. In modern laws, and in all the resolutions this Assembly have adopted, a desire is expressed to shorten these periods as much as possible. Experience has completely convinced me that from one quarter to one-third of the amount of horses affected with staggers, which give rise to lawsuits, became diseased through being placed by the purchaser in bad, ill-ventilated stables, and being fed with too nutritious food.

The *President.*—I request those gentlemen in favour of the motion of the Committee to rise. (They rise.) It is adopted.

The *Reporter.*—Next in order come, epilepsy and vertigo; and here two diseases have been placed in the same category; many members, however, thought they were not identical. Epilepsy was formerly admitted in most laws as a redhibitory defect. The disease led to a great amount of fear, and this was probably the reason that it was admitted as a redhibitory defect. Epilepsy in the horse is, in my opinion, of very rare occurrence. With vertigo, the case is different. In the deliberations of the Committee it was placed together with epilepsy by a majority of six votes to two.

Dr. *Husson.*—Epilepsy exists in the horse, but certainly not as a redhibitory defect, as its presence cannot be ascertained without the veterinary surgeon being continually with the purchaser.

Dr. *Hertwig.*—I take the liberty to ask a question, which has already been touched on slightly by Professor Husson, namely, whether the diseases epilepsy and vertigo can be admitted amongst those redhibitory defects which may be described as having existed already within a certain period. I do not think so. I have made numerous observations with regard to these diseases, and amongst them the following: I found a horse suffering from epilepsy and vertigo. I had it even in hand. The horse had been sold by the original proprietor, and after some time, between fourteen days and four weeks, had an attack. Some one had given a hint to the new proprietor to that effect. He consulted me, and, after what I already knew of the horse, I could not very well denounce it. I examined the animal, it was a handsome carriage horse. With its proprietor I drove every day, during three or four weeks. We were in places where light and shade were changing, where water was near, which threw its glittering reflex on the eyes of the horse. I tried everything to produce an attack; but no attack came until some months afterwards. This is a case in which I knew the antecedents of the animal. The admission of this disease as a redhibitory defect will be rendered impossible when we fix the corresponding period of warranty. Take the defect as existing, and answer the question during what period it will give to the purchaser a claim to legal redress. I am in favour of the omission of both defects.

Dr. *Gerlach.*—With regard to the general warranty obligation, I am, on principle, in favour of its omission, and the same reason which has already been mentioned influences me likewise. But this does not seem to me sufficient. These defects may often be proved by witnesses. If any one has bought a horse, and has received information in an indirect manner that the horse is suffering from the disease, it is sufficient if he proves this by means of witnesses. For cases of this description, a certain time must be granted. If there existed no period for this purpose, it would be very difficult to adduce proofs. Therefore, with regard to the general warranty obligation, I think these two defects must be omitted. But if we admit them, it would likewise be necessary to fix a time in which the purchaser could have been able to acquire a knowledge with regard to his horse, but months may be required for this purpose, and we cannot prolong the warranty period to such an extent.

Dr. *Husson* proposed that the debate should close.

The *Reporter*.—The fact, that in epilepsy it is difficult to prove the existence of the redhibitory defect, ought not to prevent its admission. This concerns the purchaser, who has to adduce the proof. It is impossible to place a veterinary surgeon for a term of four weeks beside a horse; and the judge must be satisfied if the case is proved by witnesses, so he is convinced that, according to the evidence of professional men, the disease exists. I beg to propose that, first, the question should be put to the vote, if epilepsy is to be admitted as a redhibitory defect? secondly, if vertigo belongs to it? and lastly, what period of warranty ought to be determined?

Dr. *Gerlach*.—This question was discussed in the Committee, and it was especially pointed out that it would be difficult to establish a distinction, and as both diseases are of the same character, it was preferred from reasons of expediency to connect them, in order to avoid disputes amongst professional men.

The *President*.—I shall now put the question to the vote. Those gentlemen who desire that epilepsy and vertigo should be admitted as redhibitory defects by animals of the equine species will please to rise. (They rise.) It is a most decided minority.

Dr. *Ulrich*.—I believe it would be better to vote separately on the two diseases; first on epilepsy and then on vertigo.

The *President*.—Do gentlemen wish to vote separately on these diseases? (They are put to the vote.) It is again a minority.

The *Reporter*.—Lunar blindness is the last amongst the redhibitory defects. The manner in which it appears, only at stated periods, qualifies it already as a redhibitory defect. I do not think any doubt can exist about it. The laws in general agree to it, and only in the law of Switzerland is it omitted.

The *President*.—Does any gentleman desire to speak about this subject. (No one.) Those gentlemen who are in favour of the admission of lunar blindness amongst the redhibitory defects by animals of the equine species will please to rise. (They rise.) It is adopted. Are the words in parenthesis, "periodical inflammation of the eyes," likewise to be admitted? Gentlemen desiring this will please to rise. (They rise.) It is likewise adopted.

The *Reporter.*—As period of warranty, the Committee proposes twenty-eight days. The already existing laws vary considerably in reference to this, between 28, 30, 40, and even 60 days, as is fixed by the Hanoverian law. But there certainly exists no disease where it is more difficult to determine a warranty period which would satisfy all parties. Opinions differ, especially with regard to the commencement of the disease. It was therefore necessary to fix an average period, of which it was believed that it would be sufficient in most cases, although some will always occur which will pass beyond it. The Committee has agreed to an average period of twenty-eight days, and is of opinion that a more prolonged period cannot be relied on with any amount of certainty.

Dr. *Gerlach.*—In the Committee I voted with the minority. I was in favour of a longer warranty period, because the disease never originated because of any sudden influence, but always after a lapse of time. A longer period of warranty causes no increased danger to the vendor; but to the purchaser it would procure, which lies already in the nature of the subject, increased security. I am in favour of at least six weeks, or forty-two days.

Dr. *Hertwig.*—Gentlemen; I would likewise be in favour of a longer warranty period if there did not occur another disease, which is so extraordinarily similar to the periodical inflammation of the eyes, that it is often difficult to distinguish one from the other. These are those internal inflammations of the eyes which in some years, when influenza is prevalent amongst horses and presents the striking rheumatic character, make their appearance. It sometimes happens then that the entire eye becomes inflamed, that greenish exudations take place in the interior, and that the similarity to real lunar blindness is very great. In these cases the vendor, beyond doubt, has sold a healthy horse. The bought horse has, during the twenty-eight days, been exposed to such influences that influenza or other acute rheumatic febriculous symptoms have been caused. The period of twenty-eight days passes, the disease becomes developed, and the purchaser must suffer the damage; twenty-eight days are, in my opinion, quite sufficient in the majority of cases. But now I shall speak in the interest of the vendor. He possesses a horse which is suffering from lunar brightness. Say the disease exists to-day, but at least ten to fourteen days more are required until its course is so far finished that the eye appears again clear and unclouded, and thus the purchaser may be deceived. Thus, since the last attack, fourteen days have passed, to this must be added the twenty-eight days' new warranty period, and we have six weeks, or from forty to forty-two days; so that even in the interest of the vendor twenty-eight days are amply sufficient.

Dr. *Gerlach.*—That which Professor Hertwig has just mentioned proves the necessity of a prolonged warranty period. I will only refer to those acute cases which possess a certain similarity to periodical inflammations of the eyes, cases which may occur every day. To determine the diagnosis alone, would require a much longer period than twenty-eight days.

Dr. *Hertwig.*—We, in Northern Germany, and particularly at the Veterinary College in Berlin, have held different opinions, and only lately was it proved by one of our colleagues that with regard to the appearances of a solitary attack, no matter how distinct it may be, it cannot be determined if the disease is really periodical inflammation of the eye, the lunar blindness, but it is always necessary to wait until a second attack takes place, in order to be quite certain on that point. But we know that cases may occur when a second attack does not take place until six months, or a longer time, has passed. How do you intend to act under those circumstances?

Dr. *Husson* proposed the close of the debate. (Assent.)

The *President.*—Gentlemen who desire a warranty period of twenty-eight days in cases of lunar blindness will please to rise. (They rise.) It is adopted.

The *President.*—The deliberations on the defects of animals of the equine species is concluded.

The meeting adjourned during quarter of an hour. At half-past eleven o'clock, when the deliberations were resumed—

The *Reporter.*—The Committee has limited the redhibitory defects by cattle to tubercles on the lungs, phthisis, and pleuro-pneumonia exudativa. In former laws other defects have been admitted, which I believe I am bound to notice, because they are mentioned in the law project of the Dresden Commission.

Amongst these deserves especial consideration: the falling of the matrix and vagina. The more modern laws have especially mentioned this disease as a redhibitory defect. In the older laws it does not often appear. It is admitted into the French law with a warrant period of nine days, and with this particular condition that the birth of the calf did not take place while already in possession of the purchaser; if the disease appears after the cow has calved in possession of the purchaser the vendor is not responsible, and every one who buys a cow with calf must run the risk. The French law has even admitted as redhibitory defect the consequences of the afterbirth not being evacuated. The more modern laws have admitted the falling of the matrix and vagina with a warranty period of eight days, and the Bavarian law with fourteen days; I therefore consider it necessary to mention the subject. It happens very seldom that the falling of the vagina renders a cow unfit for breeding purposes, and, if this should occur, the proprietor can still reimburse himself to a certain extent by slaughtering the animal. The loss of the purchaser is therefore not so great by cows as by horses, which become, in consequence of this disease, entirely valueless. Lately, the admission of this disease into the law has given rise to many suits, and, principally in consequence of cows carrying calves being conveyed for days by railroads; therefore, if possible, cattle should always be conveyed by slow-going trains. It sometimes happens that a cow, eight days before calving, is tied up for two days; when the animal arrives the disease appears, and, although it may disappear again, the purchaser takes advantage of the opportunity, obtains a certificate, and demands the price back from the vendor. The question ought therefore to be first decided, whether the falling of the vagina and matrix by cattle is to be retained as a redhibitory defect. I do not think so, because the defect occurs only in one sex, and only at a certain age; it is consequently very limited, and of no great importance with regard to commerce.

Dr. *Gerlach.*—The subject was discussed in the Committee, and, if I mistake not, rejected. The defect is in itself of no importance, and consequently not qualified to be admitted as a redhibitory defect; and during the short time that the new laws with regard to redhibitory defects have been promulgated, the admission of this defect has led to different interpretations, useless disputes, and protracted lawsuits; consequently, I vote for its rejection.

Dr. *Rueff.*—It has been stated by the Reporter that this disease occurs chiefly in connexion with a birth. During eighteen years' observation of a numerous stock of cattle, I observed that the falling of the vagina was due in most cases not to births, but generally in consequence of badly-constructed stables, and of too sloping places on which the animals stood. Those animals which suffer from a falling of the matrix or vagina generally feed very well, and are often sold for breeding purposes for especially high prices, the purchaser suffering any loss which may afterwards arise. I am therefore in favour of the admission of this disease as a redhibitory defect.

The *President.*—Those gentlemen who are in favour of the admission of the falling of the vagina and matrix by cattle as a redhibitory defect, will please to rise. (They rise.) It is rejected.

The *Reporter.* — We now come to tubercles on the lungs and phthisis. The Commission has agreed to place these two forms of disease together, because in all essentials they are very similar; the changes on the tissues of the lungs, on the diaphragm and the peritoneum, are nearly the same. They are all changes which take place gradually, and which certainly reduce the value of the animal if it is intended for breeding or for slaughtering. These are diseases which nearly everywhere have been considered as redhibitory defects, only with this difference that they have been mentioned separately; in one case, where the surface of the lung and the diaphragm were more attacked, as phthisis; and, in the other case, as pulmonary consumption, a slow, chronic disease. The placing together these two diseases seems to occasion no disadvantage. But it would perhaps be more to the purpose if, in the same manner as we separated glanders and ringworm, the one disease was described as tubercles on the lungs, or pulmonary consumption, and the other as phthisis. The warranty period for both diseases was fixed at twenty-eight days. This nearly corresponds with the more modern laws, and I do not think that any disadvantage could accrue to the vendor by its adoption.

Dr. *Ulrich.*—I would propose to add in parenthesis, after phthisis, the word "buller," as in some regions a distinction is made between phthisis and "bulling." I am convinced that both diseases originate from the same causes, and that the difference rests only in the imagination. But it nevertheless seems justifiable to express this distinction by adding the word "buller" in parenthesis.

Dr. *Fuchs.*—I am opposed to the combination of tubercles and phthisis. In my opinion both diseases are, as to character, identical, but others do not think so. The opinions on this subject differ greatly. The glanders and ringworm could better be placed together, because, according to general belief, they are identical. But as there exist doubts with regard to tubercles and phthisis in this respect, I propose that they may be separated. I am likewise against the motion of Mr. Ulrich that bulling should be added. Bulling and phthisis are not identical diseases. Extraordinary sexual excitement may appear in connexion with phthisis, but it may likewise have been produced by other causes, for example, in consequence of morbid changes of the ovariæ, where there is no phthisis. I consider it therefore not advisable to describe bulling as identical with phthisis.

Dr. *Gerlach.*—In reference to the combination of tubercles on the lungs and phthisis, I do not consider the comparison with glanders and ringworm, just made by Professor Fuchs, as pertinent to the subject. Glanders and ringworm are old, well-known terms, which appear separated in legal statutes, and with regard to which it was necessary from practical considerations to pay some attention to old customs. Every one knows that glanders and ringworm are identical. About this there exists no dispute in science, and I believe our proceedings in that respect were practical. But here the case is different. I quite concur with the expression of Professor Fuchs that tubercles on the lungs and phthisis are identical diseases. I have stated this publicly. But we know that, as yet, it is not an established fact, and that celebrated scientific authorities are opposed to this opinion. But as we are not able to decide this dispute, we must try to find a form which will satisfy all sides, the same as epilepsy and vertigo. According to their character they are identical, and whoever does not investigate microscopically, but observes the separate periods how phthisis appears alone, and forms the transition to pulmonary consumption, will not entertain a single doubt on the subject. But we cannot decide, and must therefore obtain a form in which may be amalgamated both scientific views; and this we are able to accomplish, because although there may exist scientific differences between tubercles and phthisis, yet in judging them we must meet on one and the same point. But both are in their development so chronic that we can fix a longer period. Expediency therefore recommends their being placed together. No matter if some one is of opinion that they are different diseases, the judge who has to decide with regard to their period of warranty will consider them as alike. These were the reasons which induced us to place tubercles and phthisis together, and to consider the warranty period of one as sufficient for the other. It sometimes happens likewise that they appear at the same time, when the membranæ are bordered by knotty excrescences and the lungs with tubercles. If therefore two diseases appear at the same time in such a manner, and depend thus on each other, it is our duty to connect them. Scientific considerations induce my favouring a longer warranty period, because the disease becomes developed very slowly, and if we even determine six weeks, it would not injure the purchaser. Often a longer period passes, before it is possible to adduce any proof, and this is the cause why I vote for a longer period.

Dr. *Ulrich.*—I beg leave to say a few words in answer to Professor Fuchs's statements. It ought to be admitted generally that bulling is an appearance of phthisis, or rather of consumption; I will likewise admit that, exceptionally, other causes may have produced the disease; but in most cases it will be found to be a tubercular disease. But if other causes, as morbid changes of the ovariæ, have produced the disease, it would only add another argument in favour of its admissibility amongst the redhibitory defects. If morbid degeneration of the ovaria is the cause, then it proves a chronic state of disease, and this ought to be considered a redhibitory defect. For this reason I wish that the motion which I proposed should be put to the vote.

The *Reporter.*—It would be well if we decide first if both diseases are to be taken together, or each separately. Even if the latter is decided on, there would accrue no disadvantage; because in reality it would be the same, if, first, tubercles on the lungs, and, second, phthisis is mentioned, or if both are named together. Professor Fuchs's motion may likewise be framed to accord with it.

The *President.*—I shall now put it to the vote. Those gentlemen who desire that tubercles of the lungs and phthisis in cattle should be considered as redhibitory defects, will please to rise. (They rise.) Adopted. I wish now that those gentlemen who desire to have these defects stated separately would rise. (They rise.) It is likewise the majority. Those gentlemen who are in favour of Mr. Ulrich's motion that bulling be added to phthisis, will please to rise. (They rise.) The motion is rejected.

The *Reporter.*—As warranty period twenty-eight days is proposed, the average period between fourteen and forty-two days.

Dr. *Gerlach.* I beg that my motion proposing forty-two days be put to the vote before the motion of the Committee.

The *President.*—I would prefer, in accordance with the method which until now has been employed, to put the motion of the Committee first to the vote; if this should be rejected, then Dr. Gerlach's will follow. I shall take the decision of the Assembly on the subject. Do gentlemen desire that the motion of the Committee be put to the vote first? Gentlemen in favour of it will please to rise. (They rise.) It is the majority. I request those gentlemen who agree to the motion of the Committee, namely a warranty period of twenty-eight days, to rise (They rise.) The motion is adopted.

The *Reporter.*—In older laws, epilepsy in cattle is likewise mentioned. Even the Dresden Commission has admitted it into its law project, with an average warranty period of twenty-eight days' duration. But as we have rejected epilepsy in horses, which is of greater importance there, it ought not to be admitted here. A reduction of the value of the animal is not caused in consequence, because, in despite of epilepsy, it is slaughtered and used.

The *President.*—No gentleman has desired to speak. I request, therefore, all those who are in favour of the admission of epilepsy by cattle amongst the redhibitory defects to rise. (Nobody rises.) It is rejected.

The *Reporter.*—Pleuro-pneumonia appears now nearly for the first time amongst redhibitory defects. There is in this disease a peculiar circumstance, because, in as far as it possesses a long, latent period, it has the qualities of a redhibitory defect, and convincing reasons speak in favour of its admission amongst them; if it was only for the purpose of preventing the cattle-proprietor in whose stable Pleuro-pneumonia has appeared from selling the animals, out of fear of receiving them back again. It is a general principle of cattle-proprietors, as soon as the disease has appeared in the stables, to sell their cattle, and thus contribute to the extension of the epidemic. But if they know that in forty days the animals will be returned to them, they will be very cautious, because they would be obliged to compensate the purchaser. In the obligation law there is an ordinance "that the obligation to compensate for losses may be counted back." Besides this, there exists a paragraph which states particularly that the sale of animals suffering from diseases which are under police or legal control, is justification for instituting a lawsuit for redress; but as the sale of such animals is prohibited by the police, it falls under this paragraph. The vendor must not only pay for the loss, but if he knew that the disease existed in his stable he has likewise to pay a fine for having transgressed the police regulation. Nevertheless, it appears more simple to admit Pleuro-pneumonia amongst the redibitory defects. The Commission has agreed to this unanimously, and has fixed a period of warranty of forty-two days' duration. The Hamburg Congress likewise expressed its opinion on the subject. The warranty periods until now were—in Bavaria forty days, in Saxony thirty, in Hanover forty, and in the project of the Commission forty-two days. We calculated by weeks and adopted forty-two days.

Dr. *May.*—Gentlemen; all who have had opportunities of treating Pleuro-pneumonia, and determine its diagnosis, will have become convinced that the disease contains every quality which renders it admissible amongst the number of redhibitory defects, namely that, on its commencement, it possesses so few striking appearances, that it is even difficult to the veterinary surgeon to recognise the disease. Only when the pathological process has proceeded, when other animals have fallen sick, can he do so. But I desire less on this account to have the disease admitted amongst redhibitory defects. Pray consider the following: In my country, Bohemia, great fears are justly entertained of Pleuro-pneumonia; many cattle-proprietors, at the commencement of the disease, sell their entire stock of animals, because there exists a law in Bohemia which permits the meat of cattle suffering from this disease to be eaten only if no febriculous appearances, which only occur at the commencement, have been observed. After many animals have been and are still falling as victims to Pleuro-pneumonia, it is tried to lessen their number by selling them; but the national prosperity suffers in consequence. The cattle, apparently healthy, may be sold at low prices to butchers. But butchers and cattle-dealers are both greedy of gain; if they keep the animal three, four, or five days, and see no indication of disease, they expose it again for sale, and sell it as healthy; in fourteen days, or three weeks perhaps, the animals fall sick, and the disease is thus introduced into the stable of its new proprietor. If this disease is a redhibitory defect, the first sale, when the animals are in the first stage of the disease, cannot then be so easily effected. If it is known that the disease has appeared in a stable, the purchasers will be more careful, and opportunities to spread it abroad will then present themselves less often. I have observed during a number of years that the disease is introduced from markets into the stable. About eight or ten years ago I believed that the disease originated spontaneously in our mountains. But this opinion I have long ago relinquished, because I have never observed a single case in which it had not been imported. My present views on the subject oblige me to express the wish that the Assembly would adopt the motion of the Committee, namely, to admit Pleuro-pneumonia into the number of redhibitory defects, with a warranty period fixed at forty-two days, as an average period. The first stage of the disease often lasts three, four, and even six weeks in regions where the animals are grazing; but where they are supplied with artificial fodder the course of the disease is more rapid, and therefore a period of forty-two days would be justified there, in order that no excessive disadvantage may accrue to the vendor.

The *President.*—Those gentlemen who would admit Pleuro-pneumonia in cattle amongst redhibitory defects will rise. (The proposal is adopted). I likewise request those to rise who agree to the warranty period of forty-two days, as proposed by the Committee. (This is also adopted.) Does any one desire to speak about redhibitory defects in cattle?

Dr. *Zlámal.*—The warranty is intended to protect the vendor and purchaser; we have been induced to protect whole countries and districts by means of quarantine against cattle diseases, and to the individual vendor we do not extend our protection. I refer to Rinderpest, of which we know that during its period of incubation it cannot be recognised by the surgeon, far less by the purchaser. I believe that there is no disease which there is more reason or necessity for admitting into the list of redhibitory defects than Rinderpest. But this is not the only consideration; for, if Rinderpest were declared a redhibitory defect, that would prove the severest, but the best, police measure. How is Rinderpest generally spread? If any one sees that his cattle are already suffering from the disease, or if he suspects it, he endeavours to get rid of the rest of his stock, even at low prices. These animals are driven in various directions; in three or four days the disease appears, and the purchaser has no redress. I believe we cannot omit Rinderpest from the list of redhibitory defects, as a protection for individual property and for the whole country; I therefore propose to have Rinderpest declared a redhibitory defect.

Dr. *Hertwig.*—I quite agree to this proposal, and scarcely think that any one of us will oppose it, because every contagious disease involves more or less the principle which is the basis of redhibitory defects. We always return to this principle in cases of Pleuro-pneumonia, glanders, ringworm, &c. With regard to Rinderpest, which spreads so rapidly, it can only be productive of great advantage that a cattle-dealer who, without conscience, smuggles the disease across the border, and exposes the purchaser to danger, should be made responsible. I therefore beg to support the motion of Professor Zlámal.

Dr. *Rawitsch.*—I likewise agree to it. It would be the best veterinary police measure.

Dr. *Gerlach.*—In consideration that we intend to limit the number of redhibitory defects as much as possible, and with regard to the general warranty obligation, I must oppose the motion.

The *President.*—I put the motion of Professor Zlámal to the vote. Those who wish to have Rinderpest admitted amongst redhibitory defects will please to rise. (It is admitted.) Now I beg that gentlemen will express their opinions with regard to the warranty period.

Dr. *Rawitsch.*—I believe the duration of the quarantine period would serve the purpose.

Dr. *Röll* (after leaving the chair).—I consider this period too long. Those gentlemen who have made experiments with inoculation will confirm the view that in most cases Rinderpest appears within from three to five days; the cases in which it appears within eight or nine days are few. As Rinderpest has been admitted amongst redhibitory defects, I am of opinion that the duration of the warranty period should correspond with that of incubation, and that it should be fixed at five days, as otherwise the possibility of an infection after the sale is not excluded.

Dr. *Fuchs* proposes that the period should be seven days.

Dr. *Hertwig.*—We ought, in determining the warranty period, to consider the scientific observations with regard to the time during which the disease may make its appearance. But we ought likewise to grant to the poor proprietor of an infected animal time for proper examination, and this of course requires a few more days, according to the duration of the incubation period as established by strict scientific investigation. I am in favour of at least eight or ten days.

Dr. *Rawitsch.*—The experiments which have been made in Russia since 1852 in the inoculation with Rinderpest have, with regard to the incubation period, proved that the disease appears in most cases on the fourth or fifth day after the inoculation.

But it is otherwise when the disease is communicated in a natural manner; and I have observed—and Professor Jessen can corroborate me—that the disease, after such natural infection did not appear before the eighth day. I believe therefore that the warranty period ought to be longer than eight days.

Dr. *Ulrich* and Dr. *Zlámal* propose that the warranty period should be restricted to seven days.

Dr. *Müller.*—With regard to periods of warranty, I beg to remind the Assembly that we adopted the principle of limiting the term of their duration as much as possible. During the prevalence of Rinderpest, traffic in cattle is entirely prohibited; and thus only those cases are to be considered where a smuggling trade is carried on in a dishonest manner from stables where Rinderpest is already prevalent. Whoever has healthy cattle will not easily be induced to sell them at all, unless, perhaps, to the butcher. Rinderpest requires five days for its complete development, but the circumstance must likewise be taken into consideration that by further prolonging the warranty period we should favour the purchaser more than is necessary. The animal which he has bought, even though healthy, may have passed through infected districts, and may have become infected itself. I believe, therefore, it would answer all purposes to fix the warranty period at five days.

Dr. *Hertwig.*—Five days are not by any means sufficient. We cannot be guided exclusively by the result of inoculations. In the usual course of traffic no veterinary surgeon is present who could every day examine the animal until the first changes appear. As we do not intend to frame a law for veterinary surgeons, but for the people, I consider at least seven days as indispensable.

The *President.*—Is the close of the debate desired? (Assent.) The Reporter will speak in conclusion.

The *Reporter.*—If we intend to put our principle practically in force, we must admit every contagious disease amongst redhibitory defects; but many of these diseases involve other considerations. If a disease is declared a redhibitory defect, all animals suffering from it are returnable; but nobody will desire that animals suffering from Rinderpest should be conveyed back to the place whence they originally came. In this case special legal ordinances must be employed.

Dr. *Hertwig*—This is not correct; horses must also be killed if suffering from glanders.

The *Reporter.*—Every one is obliged to refrain from any action which might illegally be the cause of loss to others. In the draft of the law we find these words: "Whoever acts in contravention of a legal prohibition, cannot plead that he was unable to foresee the damage arising from such an action." But the purchaser may claim compensation to the full amount; for it would not be just if he could only demand that the animal be taken back, and could not claim compensation for other injuries he has sustained. Therefore contagious diseases come under another category of the law; but I abstain from saying more, as the Assembly has declared Rinderpest a redhibitory defect.

The *President.*—We have before us two motions, one of which proposes a warranty period of seven days for Rinderpest, and the other a period of five days. Those gentlemen who are in favour of a warranty period of seven days for Rinderpest will rise. (The majority rise.) Gentlemen who desire only five days will please to rise. (The minority rise.) A warranty period of seven days' duration for Rinderpest is therefore adopted.

The *Reporter.*—We now proceed to redhibitory defects in sheep and goats. Here the pox is mentioned first. The Committee did not hesitate to admit this disease amongst redhibitory defects. The usual warranty period is from eight to ten days. We have, in accordance with our system of division by weeks, proposed seven days.

The proposal is adopted without discussion.

The *Reporter.*—Scab has likewise been admitted by most laws as a redhibitory defect, because in sheep it is of greater importance than in other animals. The period of warranty is generally fourteen or fifteen days; in Austria only it is fixed at eight days. The Committee propose fourteen days.

This proposal is also agreed to without debate.

The *Reporter.*—On the subject of the admission of rot in sheep and goats, the Committee could not agree. The majority were against admitting the disease as a redhibitory defect at all, because opinions differed so much in reference to the warranty period. The disease is of importance as a flock-disease; but it may possibly be subjected to the general warranty obligation.

The Congress decides against the admission of rot as a redhibitory defect.

The *Reporter*.—As rot has not been admitted, the admission of two other diseases, the worms in lungs and stomach, will likewise not be advocated. The law of 1859 has admitted the virulent foot disease, with a warranty period of fourteen days, amongst redhibitory defects. But the Committee could not adopt it, because it does not consider the disease of such importance as to entitle it to be considered a redhibitory defect.

The *President*.—I beg those gentlemen who are in favour of the admission of the foot disease to rise. (Nobody rises.)

The *Reporter*.—Amongst the diseases of pigs, measles have been almost always admitted amongst redhibitory defects, but with great differences in regard to the warranty period; which may be explained by the circumstance that pigs are by some considered as animals for slaughter, and these have fixed a short warranty period; others have considered them as animals for breeding purposes, and proposed a duration of sixty days. The Committee has agreed to admit measles amongst redhibitory defects, and to fix the warranty period at fourteen days.

The proposals of the Committee are adopted.

The *Reporter*.—I have to mention yet another disease, which has only of late been considered worthy of observation, namely, the disease of trichinæ in pigs, which has been admitted by a majority of the Committee into the list of redhibitory defects. I am happily unable to communicate any thing about it from personal observation. We scarcely know anything about it in my country, and all our examinations have, as yet, remained without result. The gentlemen from countries where trichinæ are known will be better able to give you information.

Dr. *Gerlach*.—I come, I am sorry to say, from a country where, in one year, five pigs have been found suffering from this disease. It is a fact that trichinæ appear not seldom in the kingdom of Saxony, as well as in Hanover and Brunswick. It has caused actions at law which have led to no result, as the disease is not mentioned in any law. But trichinæ ought to be considered in laws on the subject of warranty, even in preference to measles, because the presence of trichinæ renders the meat utterly and entirely useless. To the proposed warranty period of fourteen days, I have no objections, as in that time the influx commences. The real trichinæ of the muscles does not appear before the twenty-first day. I am, therefore, in favour of the admission of this defect, with a warranty period of the same duration as that agreed on for measles.

Dr. *Iwersen* seconds the motion.

Dr. *Zlámal.*—Professor Gerlach has drawn a distinction to which I quite agree, namely, that the meat of trichinous animals should be destroyed. But as long as the animal lives, it cannot be detected whether it is trichinous or not. Who will venture to say that there are trichinæ in the interior of a pig or a man that still lives and moves, and whose flesh has not commenced to putrify? We are admitting amongst redhibitory defects a disease which can only be ascertained by means of the microscope.

Dr. *Fuchs.*—With regard to the admission of the disease trichinæ into our warranty law, I agree to the motion of Professor Gerlach. Trichinæ are not of such rare occurrence as the Reporter seems to believe. In Baden, as far as I know, the presence of trichinæ in pigs has not once been ascertained; nevertheless, several cases of trichinæ have occurred there in human beings—one very lately—where the pork was no longer procurable, and the presence of trichinæ in it, in consequence, could not be ascertained. I am in favour of the admission of this defect. In reference to the warranty period, I consider that proposed too long, for after fourteen days the influx of trichinæ may have taken place; they have been observed already before now within the ninth or tenth day. It is generally quite as difficult to prove the presence of trichinæ in living animals, as of measles; the fact is only ascertained when the animal is slaughtered. I am in favour of the admission of trichinæ, but with a warranty period fixed at one week.

Dr. *Hertwig.*—The disease of trichinæ, in as far as it appears in human beings and animals, is of great importance; for it does not, like sheep-pox, limit its influence to animals, but it is a defect which likewise exerts a very detrimental influence on the health of human beings. This alone entitles the disease to be admitted amongst redhibitory defects; but there is also this reason that a kind of infection takes place, and that for the extirpation of the disease a certain period is necessary. Although trichinæ are not found everywhere, and are not everywhere alike, yet this cannot influence our decision. Trichinæ, we know, do occur in various countries; and though they must be detected by the microscope, if the signs of their presence are once known, any one with good eyes may discover them in the flesh. But their presence cannot be ascertained during the life of the animal; the warranty obligation must therefore extend to after death has taken place. If I bought a pig, and found it trichinous, I should be obliged, if there were no warranty obligation, either to eat the meat and infect myself, or to throw it away. The value of the animal would then be lost in any case; and therefore I am of opinion that we should declare trichinæ a redhibitory defect.

Dr. *Gerlach.*—To that which has been said by Professor Hertwig I have to add very little. Whether trichinæ are microscopical or macroscopical, must be a matter of indifference to us. If microscopical diseases exist, their existence must be proved. In those regions where trichinæ are prevalent, the towns have made some provision for having the meat examined. This is the case in Hanover, Brunswick, and many other places. If trichinæ are discovered in pigs, the meat is confiscated and destroyed, and the butcher cannot claim any compensation from the vendor. But if the disease should be admitted into the warranty law, then the purchaser may demand the repayment of the price.

Dr. *Fürstenberg.*—It will not be difficult to decide, if the warranty period is fixed at fourteen days, whether the influx of trichinæ took place before or after the sale. Incorporation takes place from the twenty-fourth to the thirtieth day, and we are so far secure, that if we find trichinæ moving about in the tissues and muscle-fibres, they have not been present so long, and this will serve to guide our decisions in each individual case. The macroscopical detection of the trichinæ does not happen, because the meat is seldom kept until calcination takes place; this only occurs after a considerable time has passed, and then only will trichinæ be perceptible.

Dr. *Gerlach.*—The calcined trichinæ are not macroscopical in pigs; but in human beings they are. I propose to amend the motion by saying, "muscle-trichinæ." Intestinal trichinæ likewise exist; those of the muscles do not appear within fourteen days.

Dr. *Husson* moves the close of the debate.

The *President.*—I request that those gentlemen who are in favour of the admission of trichinæ in pigs as a redhibitory defect do rise. (The proposal is agreed to.) Gentlemen who prefer the expression, "muscle-trichinæ," will please to rise. (Only a minority rises.) Those gentlemen who agree to a warranty period of fourteen days, as proposed by the Committee, will please to rise. (The proposal is adopted.)

Dr. *Husson* returns to his previously-proposed motion, for the addition of a paragraph, providing that the warranty obligation ceases if the animal sold has, after its delivery, been in contact with others suffering from the disease. This motion was formerly rejected on the ground that there existed in the different laws sufficient provisions in this respect. This was not the case with all laws; and he was therefore obliged, although he proposed it only in reference to glanders in horses, to propose it again at present, with reference in general to all contagious diseases—especially to measles and trichinæ—if the animal has eaten subsequently of infected substances. The motion was: "In cases of discharge from the nose, mange, pleuro-pneumonia exudativa, rot in sheep and goats, and scab, the purchaser loses all claim to compensation, whenever it can be proved that the animals suffering from these diseases had been in contact, since they were bought, with other animals suffering from the same diseases. The same rule is to apply to measles and trichinæ, if it can be proved that the animals, since their delivery, had eaten substances infected by parasites."

Dr. *Zangger.*—The motion of Professor Husson seems to me to be of much importance, and I shall support it, because I consider it justified in every respect.

The *Reporter.*—I think this motion ought to have been made while we were considering the warranty law in general, and not a separate disease, as it embraces all contagious diseases. But, as I have had occasion to observe before, our law ordains that the supposition of a disease shall only exist until the contrary has been proved. The vendor will doubtless take great care to prove that the animal has been in contact with others which were sick; and, if he is able to do so, all warranty obligations on his part cease.

Dr. *Gerlach.*—I am opposed to the latter part of Dr. Husson's motion, concerning measles and trichinæ, because it will be very difficult to prove the facts to which it refers; I agree to the remainder.

Dr. *Husson.*—I do not intend to withdraw the latter part of the motion.

The *President.*—Dr. Husson has likewise requested to have Rinderpest included.

Dr. *Seifmann.*—This ought to be the more the case, as in regard to Rinderpest we have fixed a warranty period of seven days, and the period of incubation may be complete on the fifth day.

The *President.*—I shall now propose the first part of the motion. We must consider how the introductory sentences to the concluding *passus* are to be constructed.

Dr. *Gerlach.*—"In those countries where the right to prove the contrary is not granted." (Cries of "Not expressed," "Not permitted."

Dr. *Rueff.*—I propose, "In those countries where the counter-proof is not granted by law." (Cries of assent.)

The *President.*—I now put the following construction to the vote: "In those countries where the counter-proof is not granted by law, the purchaser, in cases of glanders, ringworm, Pleuro-pneumonia, Rinderpest, sheep-pox, and scab, loses all claim to compensation, if it shall be proved that the animals infected thus have, since their delivery, been in contact with other animals which are suffering from these diseases." All who are in favour of this proposition will rise. (They rise.) This part of the motion has passed nearly without a dissentient voice. The second part of Professor Husson's motion is to the effect that the warranty, in cases of trichinæ and measles, is to lose its force if it can be proved that the animals, since their delivery, have fed on substances containing those parasites. Those gentlemen who are in favour of this second part of the motion will rise. (They rise.) Only a minority rise, consequently the second part of the motion is lost. We have now exhausted the points of the programme which the Committee submitted to us. With respect to the first three points of the programme, I scarcely think that there could be any opposition as to the manner in which the resolutions have been drawn up, the proposals of the Committee have been either accepted or partly lost. With regard to the general part of the fourth point, I believe a separation of the motives from the resolutions seems desirable. The resolutions, as they were drawn up yesterday, must remain as they are under all circumstances, and the debate on the really important points can by no means be reopened. I have taken, nevertheless, the liberty, with the assistance of Messrs. Gerlach and Bruckmüller, of transposing certain points, but I have altered nothing, either with regard to principle or composition. I therefore propose to you that the following shall be accepted as the composition of the general section of the fourth point of the programme:—The Assembly declares:

1. That the continuance of the general warranty obligation is a necessity. Because:—(A.) The veterinary science has progressed so much that it is in general capable to judge concrete cases: (B.) But veterinary science is not capable of enumerating even approximately all faults and deficiencies, and of fixing a certain normal period which should give to the buyer a well-founded claim at law: (C.) Only the continuance of the general warranty obligation makes it possible to do away with the so-called night defects (which means a guarantee for twenty-four hours for all diseases which make their appearance during this time).

2. That the legal term of prescription should be limited to three months at most, besides the general warranty obligation, because scientific demonstration scarcely ever extends beyond this time.

3. That a certain period of warranty be determined on for some defects, besides the general warranty obligation.

4. That the animals in regard to which a period of warranty shall be granted are——

At this point the individual diseases have to be enumerated;

and then the first part of Professor Husson's motion, which has been passed, will follow. Does this arrangement meet the approval of the Congress? (The Assembly rises.) The arrangement of the resolutions in this form is accepted.*

The *President.*—I think we may now pass to the consideration of the second part of the order of the day, namely, the success with which the deliberations and resolutions of the first Congress have been attended; but I must request that gentlemen will only mention facts, and that those gentlemen who come from the same country will unite in the election of a Reporter for this purpose.

Dr. *Hertwig.*—I am sorry to confess that the First International Congress of Veterinary Surgeons has yet borne no visible fruits in Prussia. It has had no influence whatever on legislation, and has produced no alterations.

Dr. *Müller* (Vienna).—The First Hamburg Congress has caused, in Austria, the following alterations: As to the limitation of the quarantine-period for Rinderpest then determined on, Mr. von Well has already mentioned that the Austrian Government was not in a position to effect the reduction proposed in the resolutions in Hamburg, until the second Congress had given its opinions on the subject. With a view to carrying out the resolutions to which the Second Congress of Veterinary Surgeons might come, and offering the necessary foundation for its proceedings, the Austrian Government caused Dr. Röll, in July last, to travel on the eastern frontier of Galicia and the Bukowina, to get acquainted with the quarantine institutions, and to propose such alterations as their present arrangements might render necessary. With regard to Pleuro-pneumonia, nothing has as yet been done, as, excepting in Bohemia, it appeared only sporadic. With regard to sheep-pox, the Austrian Ministry of State has been induced to discontinue the institution for the inoculation of sheep-pox at Vienna, because the Congress at Hamburg declared the so-called preventive inoculation to be more or less unsuitable, and serve only to spread the pox. In conclusion, I have to mention that the Austrian Landtag has passed a resolution for the appointment of twelve veterinary surgeons, for the special purpose of averting the introduction of Rinderpest from Hungary. These twelve surgeons are to be paid by the State.

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* The placing together of the resolution passed on the four subjects of the programme, is printed with the addenda, sub. No. 1.

Dr. *Wüst.*—The country which I represent, the Grand Duchy of Hesse, has adopted and practically carried into effect the resolutions passed at Hamburg. There has prevailed in my country, during the last few years, a dispute between two parties in the Agricultural Society. There exists an old law in Hesse permitting so-called scabby sheep to be kept within the country. According to this law, the disease of scab could not be brought under the regulations regarding epidemics, and the paragraphs in our code of punishments referring to cattle murrain had to remain of no effect in this case. Between the central Agricultural Direction, and the principal Medical Direction, this question has been the subject of frequent difference and discussion, and has been considered and reconsidered, without having been brought to any settlement. They again demanded from us an opinion. In the meantime the Congress at Hamburg took place. As Reporter on this subject, I stated that "the scab in sheep had been considered there as being properly subject to the regulations regarding cattle murrain, and a high authority in Hamburg had especially insisted that the disease belongs to this class." This had the desired effect, and now we have this disease under the regulations regarding epidemics. Now people are no longer permitted to keep such sheep, and, in consequence, the disease will cease of its own accord. This was one of the fruits of the Hamburg Congress. Another fruit was this: We have amended the medicinal tax. According to the old tax, which had been in force above twenty years, the veterinary surgeon could demand double fees in the case of such diseases as were transmissible to human beings; but these diseases were not named. This gave a somewhat uncertain character to the law, and was often the cause of wrong interpretations and prejudices, especially as regards this tax, which amounted to something considerable for veterinary surgeons. As I have already observed, we had no law stating which diseases came under this head, and which did not. We again adopted the opinions of the First International Congress of Veterinary Surgeons, with regard to those diseases which are transmissible to human beings, and carried them into law. I believe, likewise, that our Government, which has in some respects progressed more than others, would, if we were to propose it, take notice of the resolutions passed this year with regard to Rinderpest, transport of cattle, cleansing of waggons, &c.

Dr. *Fuchs.*—I have to state that the International Congress of Veterinary Surgeons has produced a very favourable impression on the Government of my country, and on the intelligent agriculturists who feel an interest in the progress of veterinary science, because they have proved that they do not confine themselves within the somewhat narrow limits of their professional practice, but likewise pay attention to the more elevated considerations of international police and national economy. This, and the manner in which questions were treated at Hamburg, has effected in Baden the reorganization of veterinary science and practice, which indeed had already commenced at that time. With reference to the regulation concerning epidemics—which has likewise formed a subject of deliberation, and will be published shortly in Baden—the different Commissions, the Government Commission as well as the professional, have gone even a step beyond the liberal opinions which were expressed at Hamburg on the subject. It is intended to limit the interference of the police as much as possible; and, therefore, (1) all the diseases, which have in Hamburg been considered subject to the regulations and laws regarding epidemics, have not been thus considered in Baden; and, (2) the measures adopted are in general milder, as they usually are intended to stimulate the activity of the people. Thus, for example, the mild description of foot-and-mouth disease is not made subject to the interference of the police; the disease being only so when it assumes a virulent character. This proves that an Assembly like this will exert a great influence on the organization of everything appertaining to veterinary practice in different countries. We must, therefore, be careful in our Assemblies to give greater weight to this point than we have done heretofore; that the reorganization of the veterinary system is of international importance, everyone here present will acknowledge, because without it we cannot very well realise our purposes;

and therefore I trust that, in future, this point will be discussed in our Assemblies with seriousness and dignity. (Applause.)

Dr. *Straub.*—Gentlemen; I have to acquaint you that lately the Ministry of the Interior in Würtemberg has issued an order to the effect, that all cattle imported into Würtemberg from the Austrian dominions are to be inspected at the frontier-town of Ulm, and that it is left to the discretion of the official veterinary surgeon there to subject the waggons to a disinfecting process or not; further, that all cattle passing through Würtemberg are likewise examined; that the railway cars at Bruchsal have, under all circumstances, to be cleaned should they be again used for the transport of cattle; or should they not be again required for this purpose, they must not be attached to waggons transporting cattle belonging to Würtemberg, so that, on no account, an infection of Würtemberg cattle can take place.

Dr. *Iwersen.*—In my country, which sent many members to the first Congress, I am sorry to say no legislative measures have yet been enacted; but we live in hope. Our mutual acquaintance has been improved, our regard for each other has become more cordial and sincere, and many would have been glad to have accompanied me.

Director *Zangger.*—In the small country which I represent, we aimed at one point which had been adopted in Hamburg; of a quarantine of twenty-one days' duration for Rinderpest we knew nothing; we had already, since 1851, in the regulations respecting epidemics a quarantine of only fourteen days against the Rinderpest. Pleuro-pneumonia has for a considerable period past been adopted as a warranty defect. We have very few sheep, and of sheep-pox we scarcely know anything, and no one thinks of inoculation. But the Swiss Federal Government has issued an order regarding the supervision of the transport of cattle on railroads. In the circular in which this law project was submitted to the several Governments of Cantons, and the management of railways, it was pointedly stated, that it was in consequence of the deliberations of the Congress of Veterinary Surgeons in Hamburg, and the reasons given there were likewise stated officially as reasons for the new law. After some slight resistance, especially on the part of the management of the railroads, this law was passed. This is the communication I had to make with regard to Switzerland, but to this I should like to add a wish. I had hoped, that previous to the communications of the reporters from the various countries, we should have received a communication from our presidency in Hamburg, informing us what steps had been taken for the execution of the resolutions which have passed. I have been informed by several persons, whether erroneously or not I do not know, that all Governments have not received the details of our deliberations. I should have been glad to receive some information on the subject, and request that, on the conclusion of the separate reports, our Hamburg Committee will enlighten us as to the steps which have been taken for carrying our wishes into effect. (Applause.)

The *Vice-President.*—I have not brought the papers with me which prove to whom, and when, the official Reports were sent; probably to all Governments and all persons who were represented at the Congress, and who took part personally. To Spain and Portugal no Report has been sent.

Dr. *Zangger.*—Neither to Belgium.

The *Vice-President.*—Belgium was not represented. The Report was sent to all participators, prepaid.

Dr. *Fuchs.*—No Report has been received by the Government of my country.

The *Vice-President.*—It depends on the department? I have always directed the Reports to the Ministers of the Interior, and I can produce letters of thanks from most of them. It certainly has happened that some Reports have been returned at the frontier, and sent back again to Stuttgart. The Report sent to Russia was twice returned.

Dr. *Rawitsch.*—Nevertheless it ultimately reached its address.

The *Vice-President.*—I always sent it again. I posted the Reports; and the list of Governments which received them, especially those Governments from the countries of which representatives appeared at the Congress in Hamburg, is still extant: I am able to prove, because the postage had to be accounted for, that all have received the Report; at all events that the Reports were sent.

Dr. *Jessen.*—Gentlemen; "time presses" is now our motto, therefore I shall state, in a few words, that in Russia the deliberations of the International Congress which assembled in Hamburg have not been lost. The proof of this is, that so many representatives of veterinary medicine from Russia are present on this occasion, and have undertaken the journey by order of Government. Although I am not able to mention any special consequences which the resolutions of Hamburg have produced in Russia, yet I can assure you that the Russian Government, which favours progress, does not overlook any new remarkable occurrence in foreign countries, and, therefore, will not pass over any resolutions or measures adopted by the International Congress of Veterinary Surgeons. In Russia at present the reorganization of Veterinary Colleges is progressing, although they have been reformed before, and it would therefore be desirable that, in accordance with the motion of Mr. Fuchs, at our next International Meeting, the means of reorganizing the veterinary system generally should form an important part of our deliberations.

The *President.*—Does any one else desire to speak? (No one.) I wish to mention a subject which was omitted yesterday, when we selected a place for our next meeting. The determination of the subjects for debate for the present Congress was delegated to us in Hamburg unconditionally. Probably Dr. Zangger, as President of the Assembly of Zürich, would be glad to know which subjects, as corresponding generally with the wishes of the majority, are to be placed on the next programme. It is not my intention to intimate that any positive charge in reference to this ought to be given him, I only wanted to advise those gentlemen who entertain the same desire to confer with Director Zangger on the subject. One thing I believe I have gleaned already from the communications of several gentlemen, viz., that the regulating of the position of veterinary surgeons, of the study of veterinary medicine, &c., should be made the subject for a debate. This subject has likewise an international importance, in so far as there is great diversity existing at present with regard to the preliminary education of students of veterinary surgery, the extent and depth of their scientific acquirements, and those rights and privileges which they enjoy, not alone in the separate States of Germany, but likewise in a more remarkable degree when compared with those States forming the other portions of Europe. I believe it comes within the sphere of our deliberations to determine the principles by which uniformity with regard to this subject may be obtainable. (Cries of "Right.") I likewise believe that motions proceeding from this Assembly would induce Governments to take up the question. If I, therefore, do not act contrary to the wishes of the Assembly, I would recommend this subject, on behalf of the Assembly, to the consideration of Dr. Zangger. Several other subjects have already been reserved for debate, which, if possible, should receive due deliberation during the meeting of the third Congress. I shall now suggest that Dr. Zangger be requested to prepare for the next Assembly an order of proceeding, containing only a few paragraphs, and with rules and regulations as concise as circumstances will permit. Gentlemen, this subject could not be determined when we were in Hamburg, because we did not know whether our periodical meetings would continue or not. But the increasing number of participators in Vienna justifies us, to a certain extent, in believing in the continuance of our meetings, and in the increase of their usefulness. I am convinced that, when we have certain rules for the debates, the harmony of members amongst themselves, as well as with the President, would be promoted, otherwise we would be obliged to rely entirely on custom and mutual forbearance.

Dr. *Zangger.*—With regard to the expressed wish, I consider it would be more to the purpose if the sketch for the next Assembly were prepared by those persons who have had the greatest amount of experience on the subject; I therefore propose that Mr. Röll, in connexion with Mr. de Hering, prepare this sketch, and submit it to the next Assembly immediately on its meeting.

The *President.*—Professor Hertwig has submitted a motion, not for the purpose of opening a debate or discussion on the subject, but only that the meeting might accept or reject it, in order that it might be entered on the minutes, and at a future time be investigated. I request the Secretary to read the motion.

Dr. *Probstmayr* (reads).—"In a previous meeting of this honourable Assembly, Professor Reynal, from Alfort, proposed a discussion on the home of the Rinderpest. This motion was not sufficiently supported, and according to my opinion justly so; because to answer this question we are not yet provided with sufficient facts, and therefore the discussion would lead to no result. But in the interest of science, and in the interest of all cattle-breeders and proprietors of cattle, I feel constrained to move the adoption of the following resolution:—'An honourable Assembly would express the wish that the Imperial Russian Government which has, through investigation of Counsellor of State Jessen, done so much already in the question of Rinderpest, should proceed a step farther, and grant the means to determine in which of the steppes of the Russian Empire the genuine Rinderpest does not develope itself spontaneously.' When this was determined we would approach nearer and nearer to those limits, behind which we had to look for the predisposing causes which produce Rinderpest. I believe this question would be settled within a few years, if the Imperial Russian Government would seriously countenance this highly important undertaking. In the motion just proposed I followed my own investigations, and especially the intimations given by Mr. Unterberger, Counsellor of State, who remarked in his pamphlet very correctly on the home of the Rinderpest; that everywhere in Russia, where it is possible to prevent the appearance of Rinderpest by means of veterinary and police measures, we must not look for the causes of the spontaneous development of this disease."

Dr. *Rawitsch.*—Mr. President, may I request permission to speak?

Dr. *Fuchs.*—There is no debate on this motion permitted; it must be either adopted or rejected *in toto.*

The *President.*—I shall divide the Assembly on the motion which has just been read; I request all gentlemen who are in favour of its adoption to rise. (They rise.) It has been passed unanimously. The gentlemen will be pleased to assemble to-morrow morning at 10 o'clock for our final meeting.

SEVENTH MEETING, 27TH AUGUST, 1865.

President, Dr. RÖLL. *Secretaries*, Drs. FORSTER and PROBSTMAYR.

The *Secretary* read the minutes of the previous meeting, which were adopted.

The *President.*—Yesterday afternoon I received a telegram from Professor Gamgee, who is at present in London. He says, "I shall arrive in Vienna on Monday, and shall be present at your meeting." But the meetings will end to-day, and Professor Gamgee will scarcely meet any one of you to-morrow in Vienna. I do not know if a misunderstanding, or circumstances which render his presence in London necessary, have retarded his arrival. I shall ask the permission of this honourable Assembly to express to him the regret of us all that we should have missed him, the originator of these Congresses, from amongst us. If gentlemen agree to this proposal, they will be pleased to express their assent by rising. (Loud cries of assent.) It is the unanimous sense of the meeting. Dr. Castres of Mayence has sent me a letter, in which he states he had no intention in our fifth meeting to speak about the occurrence of warranty defects in Rhenish Hessen, if Mr. Schell from Bonn had not induced him to do so through his speech, because the manner of proceeding in Rhenish Hessen differs from that of Rhenish Prussia. This statement has never been finished, and I propose, as the subject is one of great interest to many gentlemen, to add it as an appendix to the official report.* (Agreed to.) Mr. Counsellor of State Unterberger will now deliver his lecture on the Siberian Pest.

Dr. *Unterberger.*—Instigated by one of our honoured Presidents, and with permission of the Assembly, I intend to mention a subject which, only a few months ago, excited the attention and the interest of my honoured colleagues to a great degree, and filled the people with fear and terror: I mean the Siberian Pest. I do not mean the Siberian Pest which, according to some political newspapers, was prevalent during the winter months at St. Petersburg;—far worse than the pest which appeared in the year 78, during the reign of Vespasian in Rome; worse than the plague which ravaged the Roman States in the year 235 B.C., during the reign of the Emperor Maximinus; worse than the perspiration fever, in the sixteenth century; worse than the black death in 1333; and more virulent than many other plagues, till the arrival of the Asiatic Cholera of unhappy memory;—I mean that epidemic disease amongst the domestic animals, which as it appears often, and with particular virulence in Siberia, is called the Siberian Pest. In passing, I beg leave to state that those epidemic diseases which attacked human beings during the last winter in St. Petersburg—febris recurrens and typhus—may be connected in a greater or lesser degree with the emancipation of the serfs. Thousands of the latter, who, like their ancestors since 1592, had been bound to the soil to which they belonged, made use of their liberty to remove at the end of autumn to the capital, vainly hoping to receive high wages for little labour. They were generally disappointed; closely pressed together in their habitations, insufficiency of food, and the abuse of alcoholic drink, which has become more and more cheap in Russia, and of which the Russians, like all Slavonic nations, are excessively fond, the above-mentioned epidemics, especially typhus, which is prevalent amongst the poorer inhabitants of St. Petersburg nearly every winter and spring, assumed during last spring an especially virulent character. But it is not my intention to speak of those diseases which were prevalent amongst human beings in the Russian capital—and which, by the way, have no connexion with the Siberian Pest—but of the latter disease itself I intend to make a short communication. The just mentioned epidemic appeared first, at the end of May last year, in the districts of Novgorod and Olonetz, and soon after we learnt that it had also made its appearance in other northernly and several central districts, and only that large part of Russia which has given its name to the epidemic suffered less than usual from its ravages during the year 1864. The Siberian Pest was really virulent only a few weeks during last year, which must be less ascribed to the energetic veterinary police measures, than to the circumstance, that soon after the appearance of the disease the cold weather and heavy rains commenced, in one district sooner, in the other later; during the following months, the same as in previous years, only sporadic attacks were observed. How great the loss of human and animal life has been I am unable to state, as previous to my departure from Russia no official report had been published; but, according to the communications which have publicly appeared, the loss must have been enormous. For example, in some villages belonging to the district of Novgorod, there died, out of 41, namely, 27 men and 14 women, who had been attacked, 8 men and 3 women. Of 525 head of cattle which were suffering from the disease, 191 died; of 508 horses, 331 died; of 41 sheep and goats, 40 died. In the districts of Olonetz, Petrosawodsk, and Lodeinopolsk, situated in the province of Olonetzki, the Siberian Pest appeared, as has been previously observed, with special virulence. In those townships where it appeared, were counted before, 46,307 horses and 92,536 head of cattle; of these, 4171 horses and 1340 head of cattle were attacked by the disease, and 4118 horses and 1319 cattle died; so that only 21 head of cattle and 53 horses recovered. Now, what kind of disease is this Siberian Pest? does it appear only in Siberia and Russia? I should not ask this question in an assembly like the present, because since Haupt reported more particularly on this disease there is scarcely a veterinary surgeon who does not know it; but as this Assembly is not solely composed of veterinary surgeons, and as there are many agriculturists present, the following statements about the disease in question may be regarded by them as being not wholly without interest. The Siberian Pest is nothing more and nothing less than a form of anthrax, which appears amongst domestic animals throughout the world, from the poles to the equator. In Russia Proper it is called, from reasons which have been already explained, the Siberian Pest (sibiorskaja jaswa). The German inhabitants of Russia, those in the Baltic Provinces, Liveland, Esthland, and Kurland, call it the epidemic of boils or swellings. Next to Siberia, the provinces Perm, Kasan, Simbirsk, Wologda, Olonetz, Novgorod, Petersburg, Liveland, Esthland, and Kurland, where every year this disease appears as sporadic, and only in the so-called anthrax years as epidemic, and where it then commits fearful ravages, especially amongst horses, suffer most. It originates at first not solely among horses, but among all herbivora and omnivora, among tame as well as wild animals, and can likewise be transferred to flesh-eating animals, to birds and fishes, and even to human beings. In human beings it produces the pustula maligna, which is called in Liveland, Esthland,

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* The communication of Dr. Castres appears in the proceedings of the fifth meeting.

and Kurland, the "blue pox." These appear nearly always on such parts of the body as are uncovered, and especially on those who sleep in the open air. The transfer is probably occasioned by means of insects with stings, for example horse-flies, which have been previously in contact with the infecting matter. The "blue pox," when recognised in time, and rightly treated, is in most cases curable. In the province of Perm—I narrate from my own experience—when an agriculturist cuts his hay he provides himself with a bottle containing a mixture of snuff and ammonia. As soon as he observes that one of these pustules is developing, he opens it with a sharp instrument, rubs his medicine on to it, and generally effects a cure. In Liveland they use successfully a Spanish-fly blister, and the Tartar in the province of Simbirsk pierces the pustule, and places within the wound a small piece of chloride of mercury, which produces suppuration, and in a short time the pustule drops off. Tartars, who, as is well known, are hyppophagists, are most frequently infected, especially when employed in killing sick horses, because during this operation they are only half clothed (the Siberian Pest, as epidemic, being only prevalent during permanently hot weather and a heavy atmosphere). I have lived in the province of Simbirsk, which numbers many Tartars amongst its inhabitants, for thirteen years, and never observed that any of them became infected by eating boiled horse-flesh. The progress of the disease in animals is as follows: After an attack of fever, often slight, there appears on various parts of the body—on horses especially on the udder or the point of the sheath, in front of the breast or the region of the throat; in cattle on the dewlap; in sheep and goats on those parts of the body which are less covered by wool; in pigs on the upper front part of the neck and in the region of the throat—at first a little swelling, which quickly increases in size, and sometimes in horses grows nearly as large as the head of an infant. Originally soft, and containing a yellow watery liquid, it soon becomes hard, and its surface presents then a bacon-like appearance of a yellow colour, furrowed by red lines and spots. Generally, the animals die between twelve and twenty-four hours after being taken ill; and it seldom happens that the patients live three days after the first symptoms. In animals which have died of this disease any marked post-mortem rigidity is absent, and decomposition commences very quickly. To the most generally observable pathological changes must be added an enlarged spleen with intensely black contents, and yellow jelly-like emissions, which are found in various parts, but principally at the bottom of the mesentery. Lately, those small staff-like bodies, which have been first observed by Dr. Fuchs —as you all know, Gentlemen—in the blood of animals suffering from anthrax, have been more closely investigated by many scientific men. I name only here Pollender, Brauell, Delafond and Leisering. Mr. Brauell found them likewise repeatedly in the blood of animals which had died of the disease of boils, and he found them likewise in the blood of an attendant on the anatomical department of the College at Dorpat, who had died of the "blue pox," and in this discovery he certainly has been first. Important is likewise the discovery of Brauell, that these small bodies may even be found in still living, though diseased animals. The Siberian Pest developes—I speak from personal experience—no volatile infecting matter, but a fixed substance, which can only be transferred to human beings or animals by coming in contact with their blood. With regard to the origin of the disease, the most opposite causes have been named, as is well known to my colleagues. Miasmata arising from bogs and marshes have formerly been accused, now it is ascribed to the effect of subterranean waters, &c. This I can state, from my own observations—and my colleagues from this side of the Russian frontier will confirm it as a fact—that horses and other domestic animals, which remain during the night on their pastures are more subject to attacks of the disease than those which before sun-set are confined to their stables and are let out again after the rising of the sun. With respect to the treatment of the disease, I will say only a few words. The remedies which are used in Russia are the same as those employed by German, French, or the veterinary surgeons of other nations; only this much will I state, that if the disease appears as an epidemic, every exertion of the veterinary will be in vain. All animals attacked by this disease at the commencement of the epidemic fall victims to it. Thus in the year 1837, not less than 1900 horses died of this disease in the neighbourhood of my own residence. When the epidemic has continued some time, the external use of cold water has been attended with success, as I learnt already from Strauss, in Mezöhegyes, in 1833; likewise the application of red-hot iron to the boils, and the cutting open and cauterizing the same with various substances. Internally, diluted acids are given; to bleed, I found in my own practice only useful as a prophylactic, when at the same time a change of diet was effected. I lived, as I stated previously, a considerable time in a province where malaria prevailed, but I found all the more rigid measures for preventing communication unnecessary. I have been repeatedly obliged to place horses belonging to Government in the same stables wherein I had horses belonging to farmers suffering from these pustules. Those horses which were in my charge and were properly treated were not infected. Our colleague Brauell, as communicated by Counsellor of State Jessen, has during the last few years made repeated experiments with the infecting matter of anthrax. All animals which were not inoculated, and had been some time in close contact with those which were, did not become diseased. These, Gentlemen, are the communications which I intended to make on the Siberian Pest. When in future newspapers should furnish articles on the epidemic in question, which may arrive every two or three years, I trust these remarks will be found useful to you, Gentlemen, in soothing excited minds and enabling you to say "Russia is suffering again severely this year from anthrax," thus giving the disease its correct name. A very genial man, Count Keyserling, made the remark: The Siberian Pest has only created such extraordinary excitement in other parts of Europe on account of its name being composed of two words which of themselves are quite sufficient to cause terror, namely, 'Siberia' and 'Pest.'" (Cries of "Very good," and long continued applause.)

The *President.*—Professor Rawitsch wishes to speak on the same subject.

Dr. *Rawitsch.*—Gentlemen; in an Assembly where the most celebrated authorities on veterinary medicine are congregated, it would seem presumptuous on my part to enter into the discussion of a disease which has been known in Germany since the last century; because I affirm that the Germans were the first to describe the disease last century. At that time we had in Russia neither veterinary surgeons nor medical men. In the course of time valuable experience has been acquired with regard to this disease. And after the gigantic work of Heusinger, which will retain its place, it would be superfluous for me to enter into a discussion on the disease, and more especially as the gentleman who spoke last has entered so thoroughly into details. Still there are two points which appear to me worthy of consideration: 1. The nosology of the disease, and 2. The ætiology of the epidemic which committed its ravages during last year. With regard to the nosology of this disease I may say, in few words: the Siberian Pest is no pest of Siberia, but a pest of Russia, of entire Russia. During last century, and previously, it was a pest of the whole of Europe. But as this disease originates in Siberia, and as it was first observed scientifically (at least to a certain extent) in that country by Pallas, it has been called since then the Siberian Pest. But it is no disease *sui generis,* it is nothing but anthrax, and this anthrax does not appear in one form, but it developes itself into all those various forms which are generally observed in this disease. We have an apoplectic form, which I have noticed; we have a purely feverish form; and we have the common, the pustule form. The disease, appears most frequently in horses. In the other domestic animals, in sheep, for example, it seldom occurs; this is probably traceable to the fact that large establishments for breeding sheep, where the appearance of an epidemic always creates the greatest excitement, are situated generally in the dry parts of the steppes, and not in regions where malaria may be expected to appear, and only few sheep are found in those wooded and boggy districts where the disease generally makes its appearance—in Petersburg, Novgorod, Olonetz, for example. But here numerous horses and cattle are generally kept. As previously remarked by Counsellor of State Unterberger, the disease developes itself most frequently in such animals as are exposed during the evening and night to the influence of malaria. Horned cattle are brought into stables of an evening; but horses, because during the day they have to work, are brought to their marshy pasture grounds in the evening, and remain there during the night. This, I believe is the principal cause why horses are most frequently exposed to the attacks of this disease. Besides malaria there is an ætiological element to which I intend to direct your attention, and which operates like an artificially produced malaria. In the provinces Olonetz, Novgorod, Twer, as far as Petersburg, is a water communication by means of canals, which connects the Volga and other rivers partly with the Neva and Lake Ladoga. The vessels on these canals are drawn by horses, and thousands of them are continually employed at this work. The indolence of the Russian peasant is so great, that to realise a profit he overworks his horses, and does not trouble himself at all about their feeding. It happens often that many of these horses die of exhaustion, weakness, overwork, and insufficiency of good fodder. Their carcases are not buried, but remain where they fall, and thus accumulate more and more, or are sometimes thrown into the canals, the water of which carries them away. This disease, therefore, which originally was nothing extraordinary, created, in consequence of want of fodder, overwork, and so forth, a miasma which committed the most frightful ravages. Thus, according to the official report, during the last year there died 10,000 animals, mostly horses (few cattle, and fewer sheep) and 1000 human beings in the following five provinces: Petersburg, Novgorod, Olonetz, Twer, and Jaroslaw. I am of opinion that the disease is certainly infectious. I have seen reports of medical men, which prove that in many human beings not alone pustula maligna, but likewise the disease of boils, has been produced; and this not by means of the transfer of the poison into the blood, but solely by placing the skin of the animal on the hand. It is not requisite to infuse the poison into the blood; but I believe I may affirm, in spite of these observations which I certainly did read, that in these parts the disease does not possess the intensely strong capability of infection which in other cases properly belongs to anthrax. I am convinced that the so-called apoplectic form is not contagious. I have likewise to state something else: Many cases of death from apoplexy occur among horses, which have nothing whatever to do with the so-called Siberian Pest. One instance occurred during last summer in Petersburg. Four horses which were harnessed to an omnibus fell at one time in the street; the town became excited; it was said the Siberian Pest was already amongst them. It was afterwards ascertained that it was nothing but apoplexy; and how often may it not happen in every-day practice, where we do not examine so carefully with the knife, that a case of apoplexy is declared, in mistake, to be anthrax? With regard to gnats, there are many people still amongst us who believe in a "Furia infernalis,' and believe that a gnat is able to transfer the poisonous substance. I agree with Director Gerlach, and am of opinion that the time has arrived when we may abandon the belief in homœopathic doses of infectious matter. In 1860, when Professor Jessen and myself were ordered to place limits to the ravages of the Siberian Pest in Petersburg, I had to pass through many forests, and was often bitten by gnats, but never infected. (Dr. *Zlámal:* "This is no proof.") It is possible that when anthrax is prevalent amongst animals, that a bite, which at other times would originate a trifling swelling, produces a disease which bears a close resemblance to carbuncles. Gentlemen are doubtless aware that formerly, as well as now, it has been asserted in France that anthrax may originate spontaneously in human beings. The same opinions have been expressed lately by medical men in Russia, and it is to be hoped that in time we may obtain some proofs of this assertion. At all events, the great epidemic we had last summer was not the common malaria that visits us every year, and in all parts of Russia; but the epidemic was caused by the enormous accumulation of dead horses—at some places more than 200 carcases were found. The Veterinary Department of the Ministry of the Interior had to despatch soldiers, under the command of a general, to force the people to inter them. This year the Ministry of the Interior proceeded more carefully, and had sent, in accordance with a proposition of the Committee, officials and veterinary surgeons to enforce regulations. As a consequence nothing has been heard of an epidemic in that province; a few cases certainly occurred, but the total number was very trifling. In conclusion, permit me to remark, Gentlemen, that in the present state of affairs in Russia it is very difficult to obtain any positive information upon epidemics and their origin, and this will remain the case, as the veterinary police in Russia is not so thoroughly organized as in other States of Europe. Hereon depends likewise the solution of the question about the origin of the Rinderpest. I must mention that the progress Russia has made during the last ten years in veterinary science is very considerable; we try to emulate our colleagues in other parts of Europe, and trust to God for assistance. (Applause.)

The *President.*—Counsellor of State Jessen will speak next.

Dr. *Rawitsch.*—Only one word, I forgot to mention that our medical men use chininum sulfuricum with great success against the Siberian Pest.

Dr. *Jessen.*—Honourable Assembly: as in this Second International Congress of Veterinary Surgeons the prevention of the exportation of Rinderpest from the so-called steppes of Russia formed an important subject of debate, it would seem strange if none of the Russian delegates noticed the extraordinary exertions the Russian Government has made to render such exportation an impossibility. Our colleague Dr. Halicki, from Charkow, has mentioned to the Assembly those inoculations which, since 1857, have been undertaken in Karlowka. That it was not my intention to speak on this subject is proved by those papers which were delivered to the Committee, and afterwards published for the information of the members. Many points are not yet sufficiently investigated to be fit for a public report, and I should have been afraid, by the lively interest which the subject inspires, to have begun a discussion which might have sorely tried the patience of the Assembly. In the last number of the 'Eastern Quarterly Publication of Scientific Veterinary Medicine,' I pointed to the second article, on 'Immunity and Mitigation,' and stated that the publication of the four yearly results of the two inoculation institutions erected by Government ought to be waited for. Until then, every debate on the question of inoculation, even in an assembly of international professional men, would be useless, and not bring us nearer the end. But, as one of our colleagues observed very pertinently, that all affairs which are in any way closely allied to the giant "necessity" must be settled with all possible haste, it is possible that the next International Assembly may furnish an opportunity for this debate. As I have, however, risen to address you, I shall confine my observations to replying to three questions:—1st. Is there a drove in the world which may be considered as entirely protected from Rinderpest in consequence of inoculation. 2nd. Is it possible that in those steppes, where the use of inoculation has caused greater losses, there may be still satisfactory results expected. 3rd. What reasons have induced me to believe that the Rinderpest in the steppes of the Kirgisia and Cherson Provinces originates spontaneously? You have conferred a high honour on me during this Congress by a vote of acknowledgment; I tried to stammer out a few words declining thanks, which I will not retract, but I will confess that now, when I have somewhat recovered from my surprise, I find in your vote the highest reward which throughout my life I have received, and, therefore, I should be loath to reject it entirely; I therefore propose a compromise; I retain a small part of it and return the remainder to you. I have not only recovered, Gentlemen, but I feel likewise new courage. You will therefore ascribe it to yourselves, if I do not come up to your expectations; perhaps you will chide me at once, when I answer my first question with a loud "Yes;" because to demand a belief in it, even according to the demonstration of the statistical maps, may appear to many a little too much. I will not blame any one for it, although I would remind all of the words of our honoured colleague, Dr. Müller, during the first Congress: "When so many and such extensive experiments have been made, as in Russia, it is at last time to believe likewise." But, Gentlemen, I do assure you that my conviction rests not alone on this statistical map, but on the study of all inoculations performed in Russia, an entire summary of which I possess. I therefore refer not only to the communications of Raupach, although I am well qualified to guarantee the truthfulness of a man whom I know intimately as a former student, and who is influenced by the same love and zeal for science which the veterinary colleges of the present time impress on their students. The inoculations at Karlowka have not been performed in private, but publicly before all the world. The admission to the inoculation institutions has not been denied to any one. I, myself, have been there twice, but was only able to see the method of inoculation, and was not able to wait for results, but all the officials there testified to the correctness of the

Reports of Raupach. Every one who has read them will have felt the conviction that they were not fabricated, but bore the stamp of truth. To say more in general about vaccination to this Assembly, would be like carrying owls to Athens, therefore let us proceed at once. The Speaker, in his introductory remarks, stated, that on the large estate of Karlowka, in the province of Poltawa, are three droves of cattle, namely, 1st. A drove of grey steppe cattle belonging to the peasants, amounting to between 14,000 and 15,000 head or more. 2nd. Another drove, likewise consisting of pure steppe cattle, and amounting to between 8000 and 9000 head, which by careful breeding have been improved to an enormous size, and brought to great perfection. This drove produces the oxen for work required on the estate, and their requisite number is completed by purchase of new oxen from the steppes. The 3rd is a smaller drove of English dairy cattle, large Devonshire breed, of extraordinary beauty and excellence, which had become completely acclimatised. With the Rinderpest it stood thus: into the drove belonging to the peasants the disease was very often introduced by means of extraneous infection, and communicated to the work-oxen, which came to every place of the second drove, from which, in their turn, the English cattle were infected. During the years 1857 and 1858 the loss among the infected of steppe cattle was on the average 31⅘ per cent., and of the English breed 60 per cent. In the year 1857 the inoculations of cattle of the second drove (steppe cattle) of one and one and a half year old commenced, and was continued to the 24th of April, 1861. Owing to the illness of Director Raupach it could not be recommenced until the 7th of February, 1864, and we have most careful report of the results from Raupach, and the statistical map from the Speaker, which has been composed on the foundation which Raupach's Reports furnished, to the 17th of September of the present year. We learn from it that the loss on an average is nearly the same as before, viz., 5½ per cent. amongst the inoculated young cattle, because out of 1189 head of cattle 64 died. The young cattle of the English drove were not inoculated, because great losses, and with justice, were anticipated. But as the second drove (steppe cattle) were freed from Rinderpest, they could no longer communicate it to the English cattle, and these have not suffered at all since inoculation has been introduced. Inoculation was not forced as a coercive measure on the peasants, and in consequence their droves have, during the last eight years, been several times decimated by Rinderpest. Raupach's latest Report remarks on this subject as follows:—"Those people, who in consequence of their altered position in life have been forced to pay more regard to their own profit, have, partly by their own heavy losses, and partly by the favourable results which attended the inoculation of the second drove, become completely convinced of the advantages to be derived from inoculation; they have seen that of 1189 inoculated animals, only a few more than 5⅓ per cent. died, which means the tenth part of the amount which fall victims to the natural disease; that of all these animals which they worked, and which they had to guard during a period of eight years, not one which had the mark of immunity died of the Rinderpest, with which they are well acquainted, or was even attacked by it, though they were driven together with their own herds, which were thinned frightfully by the disease three times during these eight years purposely. These were facts well able to convince even the most conservative peasant." The Speaker points likewise to the fact that the inoculations in Karlowka have likewise led to the conviction that the vaccine-substance, after many months' preservation, often retains its efficacy. But as it generally only operates on those which are highly predisposed, as these attacks are very trifling as a rule, and as the preserved vaccine-substance sometimes does not operate at all, doubts about its protecting power have been raised, although the inoculated animals have by all tests demonstrated their immunity. These doubts have, since the last inoculations in 1864, been entirely silenced; because the inoculations were only performed with new vaccine matter the sickness became more decided, and the average loss did not increase. There is consequently a herd of native cattle in the steppe which are and remain protected against the Rinderpest, provided inoculation is continued with the new-born. Every head of this drove may pass beyond the borders without being able to originate the Rinderpest spontaneously, to be infected, or to infect others. This Karlowka has taught us, as well as the great advantages which the operations of the vaccination institution situated there has produced. Should this example be given in vain, especially when the appearance of Rinderpest in England at present proves how difficult it is, with the means of communication which we enjoy, to exclude it from any country where is does not originate? That the Rinderpest inoculation has produced—even in those steppes where the previous trials had shown an average loss of 39 to 40 per cent., when used as an "inoculation of necessity" for the extirpation of the epidemic—more favourable results than any previous method adopted to stop the disease, is explained by the Speaker by means of a schematic map of such an "inoculation of necessity" in the district of Orenberg. He only regrets that similar instructive experiments have not been repeated more frequently. With regard to the answer to the third question, the Speaker first draws the attention of the Assembly to the great and apparently insurmountable difficulties in the way when and where a contagious disease developes itself. The evidence of the inhabitants and of the appointed medical men and veterinary surgeons in those parts where there is a suspicion of the Rinderpest, or where its presence has already been represented as proved, is so contradictory as to be utterly valueless for scientific purposes. The study of the history and nature of the disease would be more promising; but this—with regard to the Rinderpest in the steppes—is in its infancy, and has only made some progress since 1853, through the continued inoculation under scientific supervision. The results of the inoculations in the Cherson district, as well as those on the cattle in the Kirgise-steppe, had convinced him (the speaker) that the spontaneous development must be looked for there, as is proved by his pamphlet, 'The Rinderpest and its Inoculation in the Provinces Cherson, Orenberg, &c.,' and by his writings on 'Immunity and Mitigation' in the few last numbers of the 'Quarterly Publication for Scientific Veterinary Medicine.' If these opinions are correct, where the limits of spontaneous development end can only be known when the requisite number of well-educated veterinary surgeons, zealous in their investigations, have inhabited the steppe-districts for a considerable period.

The Speaker concludes with the following words:—From this place the effects have been narrated which the deliberations of the First International Congress of Veterinary Surgeons have produced on various countries. With regard to Russia, I am not able to state, in this respect, anything in detail. But is it not a proof that the deliberations of the first Congress have commanded a great amount of attention in Russia, when we see here the number of men representing veterinary science whose home is Russia? I can say with certainty that in my country, where the Government advocates progress in everything concerning the public weal, the deliberations of the International Congress, whose end and aim is to benefit the masses, will always be received with that appreciation and acknowledgment which they deserve. With regard to myself, my expectations have been far surpassed, and the young society—without organised articles of association, and without detailed rules of proceedings—has nevertheless been directed in a masterly manner, and with great temperance and quietness, without any digression, and in a dignified manner; if its members have entered into and settled all those themes which occupy the mind at present, so is this attributable to the circumstance that there were present only professional men and such as were convinced of the great importance of scientific veterinary medicine with regard to national economy, and they therefore feel a special interest in the subject. May it remain always thus! On leaving, Gentlemen, I cannot refrain from expressing my thanks for some new information which I carry with me, and consider it a great profit that these assemblies have again fortified and confirmed the conviction that it is often possible, and becomes at times necessary, that men be strongly opposed to each other on scientific subjects, without their hearty good-will, esteem, and friendship being endangered by it in the slightest degree.

The *President.*—Professor Perosino asks the permission of the Assembly to say a few words on the results of Rinderpest inoculations in Italy. Do you desire this? (Cries of "Yes, certainly."

Professor *Perosino* addressed the meeting at some length on the outbreak of Cattle Plague in Italy in 1862 and 1863, and especially on the observations made as to the disease prevailing amongst goats.

The *President.*—Gentlemen; with this, the subjects which formed the order of the day are exhausted, and the debates of the present Congress are at an end. I take the liberty to acquaint you with a motion proposed by Mr. Wüst, which has some reference to a subject of debate for the next Congress. The motion is as follows: "The honourable Assembly resolves, that the next International Congress of Veterinary Surgeons may deliberate upon the possibility of elevating the profession of veterinary science, and especially what conditions are to be fulfilled and what preliminary knowledge (judging from the present state of science) is requisite for the study of veterinary medicine." The principle of the motion has been adopted yesterday. I believe I act in accordance with the desire of the Assembly when I add this motion to the other subjects of deliberation which have not yet been finally decided, and deliver it to the President of the next Congress.

After a short address by Professor *Zangger*, and votes of thanks to the office-bearers, the Assembly dissolved.

To face Page 819.

PLATE II.

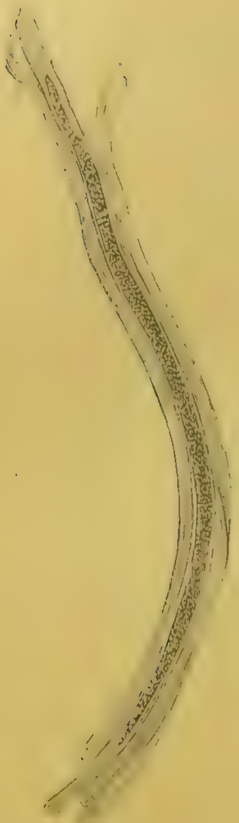

FIG. 1.

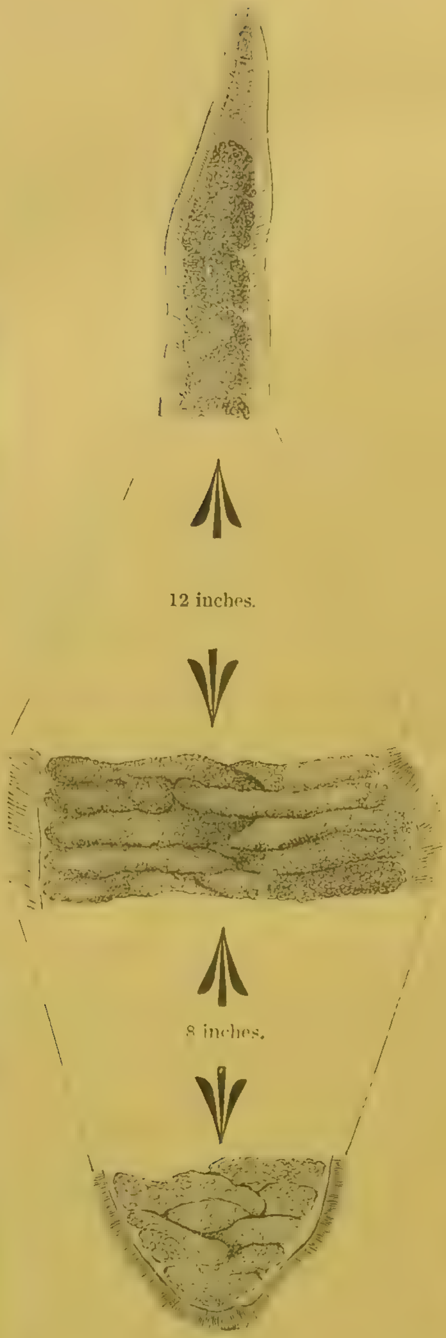

FIG. 4.

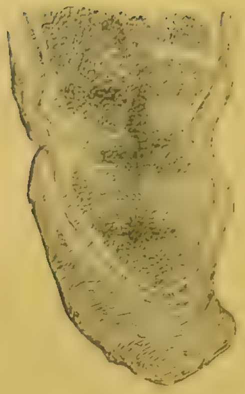

FIG. 3.

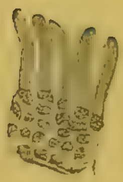

FIG. 5.

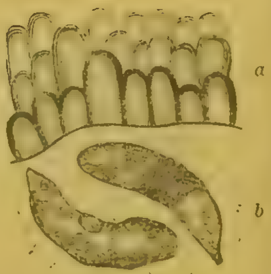

FIG. 6.

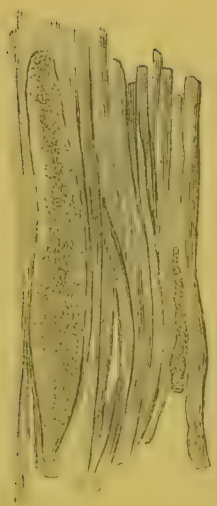

FIG. 2.

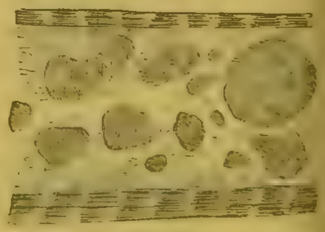

FIG. 7.

DR. BEALE'S ILLUSTRATIONS OF ENTOZOON-LIKE BODIES IN MUSCLE.

APPENDIX.

ON ENTOZOA (?) IN THE MUSCLES OF ANIMALS DESTROYED BY CATTLE PLAGUE.

BY LIONEL S. BEALE, F.R.S.

From the 'Medical Times and Gazette' of January 20, 1866.

For some time past I have been engaged in researches upon the bodies in question, and as public attention has been already called to the subject by Dr. Fenwick in a letter to *The Times* of January 3, 1866, and in a communication from one of your correspondents, I propose at once to describe briefly what I have observed. The results of my observations will be given in detail in my report to the Royal Commission, but it seems desirable that a few of the facts ascertained in connexion with this most interesting matter should at once be published.

The bodies in question are without doubt very definite, very common, and very easily detected. They are for the most part spindle-shaped bodies, each embedded in the sarcous tissue of an elementary fibre. I have also, but in a few instances only, seen these bodies lying free amongst the elementary muscular fibres. They have been found in considerable number in the muscles of every animal dead of Cattle Plague in which I have sought for them, with one exception,* and in all the different muscles examined from a single carcase. They are commonly met with in large numbers in the muscular fibres of the heart.

These bodies are exceedingly distinct; they vary much in size, but invariably exhibit the same general characters. There is little difficulty in finding them if only very small pieces of muscular tissue be subjected to examination; but being very transparent, they are easily hidden from view if surrounded by normal elementary muscular fibres, and thus they may escape detection. They vary in number, and I should think that in some cases I have seen them as numerous as one to, at the most, twenty muscular fibres (Fig. 2), while in

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* The exception was an undoubted case of Cattle Plague, the post-mortem examination of which was witnessed by Professor Browne, of the Veterinary Department of the Privy Council.

others perhaps they may not be found in greater number than in the proportion of one to a hundred muscular fibres. The smallest are oval, but as they grow they become spindle-shaped, and usually one end is pointed, while the opposite extremity is more or less rounded (Figs. 2 and 3). In some there are slight projections from different parts of the surface, as if there were tendency to the formation of segments or lateral pores. But in the larger ones the outline appears perfectly uniform. In all there is a distinct investing membrane of a peculiar structure, varying in thickness in bodies of different sizes, the outer surface of which is in contact with the sarcous tissue, or with the sarcolemma, save in a few instances in which the bodies are free. Even when the peculiar bodies lie embedded in the sarcous tissue, being surrounded on all sides by a thin layer of it, the transverse markings of the contractile material are perfectly distinct (Fig. 3). The masses of germinal matter in the affected tissue are not larger than those of adjacent muscular fibres. There is no evidence of granular, fatty, amyloid, or other form of degeneration. And whatever these peculiar bodies may eventually be proved to be, it is certain that they grow within the contractile material, and by their growth excite no irritation. The muscular tissue in contact with them seems, as it were, slowly to make way for their increased growth, without the occurrence of inflammation or any other morbid change.

A notion of the general form, size, and appearance of the worm-like body when examined under a quarter-of-an-inch object-glass, magnifying 215 diameters, may be formed by reference to Fig. 4.

Structure of the Investing Membrane.—Not the least interesting point in connexion with these curious bodies is the investing membrane, and it is very desirable to draw the attention of Helminthologists to its anatomical characters (Fig. 4).

The tissue is very transparent, and varies in thickness in different parts. It appears to exhibit delicate transverse markings, but upon careful examination it is found that these are caused by the linear arrangement of minute hair-like fibres. These processes of the investing membrane were described by Mr. Rainey in his paper in the *Phil. Trans.* for 1857.* He says they increase in size and distinctness as the animal grows larger:—"They have not the sharp and well-defined outline of true cilia, nor are they pointed like setæ, or curled like cirri." In a specimen in my possession, however, the bodies in question seem to be pointed, and the whole appearance under a power of 1000 diameters is such as would result if the investment consisted of very delicate transparent conical hairs, terminating outwards in pointed processes. In other instances the extremities appear blunt and a little rounded (Fig. 5). When pressed firmly, fluid seems to be forced into the processes, and they exhibit the remarkable appearance delineated in Fig. 6. After lying in water for some time, the projecting filaments exhibited the usual characters of cilia, and would no doubt be termed *cilia* by any anatomist. These hair-like processes appear to be connected with one another when the specimen is perfectly fresh, and in young specimens there is no indication of such a structure. It would seem that they are developed as the body grows, and although formed together in a mass, readily become separated so as to give rise to the structure described. The structure of this membrane is so beautiful and delicate that it might be employed as a test object for estimating the defining power of object-glasses.

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* 'On the Structure and Development of the Cysticercus Cellulosæ, as found in the Muscles of the Pig.'—*Phil. Trans.*, vol. 147.

The peculiar structure of the external investment, covering, or sheath, will be understood by reference to Figs. 4, 5, and 6, and I shall not here enter into a more minute description of it. I regard it as a peculiar formation, and feel quite certain that the appearances do not result from any modification occurring in the layer of sarcous matter, which was immediately in contact with the body under consideration during its increase in size.

Of the Contents of the Entozoon-like Body.—The contents of these spindle-shaped bags, cysts, or investments, without doubt, form the most important part of the mass, and are well worthy of the most attentive consideration. When examined by a low power, the matter occupying the cavity appears granular, and there are distinct indications of the mass being subdivided into smaller portions, the divisions being most distinct transversely. I do not think these are distinct septa, but the appearance is such as would result if each of a number of masses of germinal matter in the interior of a cavity, with extensible walls, were to divide and sub-divide into numerous masses, which were capable of growth and multiplication. The appearance is given in Fig. 4. The entire contents of every one of these bodies I have seen exhibit the same characters. There is no indication of alimentary canal, ovary, or any secreting gland or other *organ*. It is, therefore, only necessary to call attention to the small individual particles of an aggregation of which each of the peculiar bodies in question entirely and invariably consists.

These bodies are for the most part of an oval form or spindle-shaped. When perfectly mature the body is curved, one extremity being rounded, while the other is almost sharp as represented in Fig. 6. They are flattened, and apparently consist of a transparent material, which exhibits here and there spots differing in refraction from the mass. These are irregularly disseminated through the mass, and give to it a granular appearance when it is examined by low powers, but under the influence of high magnifying powers the appearance is such as to render it doubtful if, at least in all cases, there are actual granules distinct from the general mass. The body is rendered more transparent and the granules more distinct by liquor potassæ.

The bodies approximate to one another very closely in dimensions, but it is difficult to find two of *precisely* the same figure; and it seems to me most probable that they change in form when they escape into the surrounding fluid by the rupture of the sac. In their general appearance these bodies so closely resemble the nuclei of tissues, that under low powers one might be easily mistaken for the other. But upon careful examination by the highest powers ($\frac{1}{25}$ and $\frac{1}{50}$), it will be found that the outline is sharper, that the general mass is more uniform, while the alterations in form are greater than are observed in muscle-nuclei. Moreover, these bodies are often seen in such great number (fifty or a hundred or more being in the field at one time) that they cannot be mistaken for nuclei. They are also smaller than the nuclei of muscle and very much smaller than the greatly enlarged muscular nuclei seen in the muscles of animals destroyed by Cattle Plague.

Upon the whole, it seems to me almost certain that, at least up to a certain period of its existence, each of these little bodies is capable of giving rise to others like itself, by division and sub-division, and these to more in the same way. To what extent this process is capable of being carried I can form no idea. The spindle-shaped elongated cysts, in which these particles grow and multiply, sometimes reach a very great length. In a specimen of muscle sent to me by Dr. Eade, of Norwich, I found two as much as the *quarter of an inch in length*, and one is so narrow that the muscular fibre in which it lies still exhibits its normal diameter. Although I have never seen a distinct pore or aperture in any part of the cysts, it seems not improbable that an orifice might be formed at one or other extremity, or at a point of the body where the external wall is thinner than in other parts, In this way the escape of these bodies from their parent cyst, a few at a time, would be effected, while the process of multiplication, still going on within, would not be interfered with. But whether the individual masses are able to migrate from one part of the body to another, or, after having been produced in enormous number within the cyst, they are destined to remain dormant until, by the death of the animal, opportunity for a far more distant migration is provided, or whether, as is perhaps upon the whole least probable, from the collection already described, a true entozoon is evolved. must be determined by future research.

Tenacity of Life.—The little bodies in question are very tenacious of life, and they are not permeated by the carmine fluid till long after every mass of germinal matter (nucleus) of the muscles, vessels, and nerves, have been deeply coloured—a fact which shows that at any rate these bodies are quite distinct from the muscle-nuclei, and have not descended from them. After remaining for many hours in the carmine fluid they take the colour like every other kind of living matter, and several specimens exhibited one spot darker than other parts.

I have tried some experiments with the hope of causing these bodies to multiply, but my attempts have hitherto failed. In water the bodies may remain for several days without undergoing much change.

Conclusion of Previous Observers.—Professor Siebold states that these peculiar bodies were discovered by Miescher in the muscles of a mouse in 1843.

Hessling* found them in the muscular fibres of the heart of the sheep and ox. They have been also found in the deer. By Siebold and Bischoff they have been seen in the muscles of the mouse and rat. The latter observer found them in all the muscles of a rat in 1845. In 1855 Rainey† found and figured similar bodies in the muscles of a pig, and inferred that they represented the early period of development of the "*cysticercus cellulosæ*" of that animal; but later writers, and especially Leuckart and Cobbold, do not consider the evidence upon which this inference rests at all conclusive.

The form of the body, the peculiar structure of the external investing membrane, would incline one to regard the bodies as some species of entozoon in an imperfect stage of development, and from the character of the contents I doubt if any zoologist would consider them allied to the gregarinida or psorospermiæ. There is, I think, no doubt that these bodies are of an animal nature. There is no character that renders it at all probable that they belong to the vegetable kingdom. I am not aware of any gregariniform body exhibiting either the form, very considerable size, peculiar contents, or general characters of the bodies in question, although some species do attain considerable dimensions.‡

The nature of these very peculiar and striking bodies has not yet been made out, and although it is possible that they may have nothing whatever to do with the Cattle Plague, the constancy of their occurrence in very large number in the muscles of animals that have died of this disease is remarkable. Moreover, as there can be no doubt that bodies capable of rapid multiplication, far less than those forming the contents of the spindle-shaped cysts, would be competent to give rise to all the symptoms observed in Cattle Plague, if they passed into the vascular system, it seems of the utmost importance that the natural history of these bodies should be traced out.

CONCLUSIONS.

The facts concerning these entozoa (?) may be summed up as follows:—

1. That in almost all, if not in all, animals dying of Cattle Plague, entozoa or entozoon-like bodies exist in considerable number in the voluntary muscles of the system and in the heart.

2. These or closely allied species have been known for more than twenty years, but their nature has not yet been determined. They have been found in the ox, sheep, deer, pig, rat, mouse, and perhaps other animals.

3. They are occasionally found, but in very small numbers, in animals apparently in perfect health when killed.

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* Siebold and Kölliker's *Zeitschrift*, Band v., p. 197.

† 'On the Structure and Development of the Cysticercus Cellulosæ, as found in the Muscles of the Pig,' by George Rainey, M.R.C.S., *Phil. Trans.*, vol. 147, p. 111, 1857.

‡ See 'Notes on Gregarinida,' by E. Ray-Lankester, *Quar. Jour. Mic. Science*, January, 1866, p. 23.

4. In the muscles of a calf killed by Cattle Plague, under *six months* of age, these bodies were found in immense numbers.

5. They vary in length from less than the $\frac{1}{300}$th of an inch to at least a quarter of an inch in length. They are, for the most part, embedded in the contractile material of the elementary muscular fibre, but they are occasionally found free.

6. They are for the most part spindle-shaped, and the external investment or envelope exhibits a very delicate and peculiar structure, being completely covered with delicate hair-like processes.

7. The mass within appears granular to low powers, and exhibits a division into numerous segments, but it is found to consist entirely of minute bodies resembling one another, possessing very definite characters, less than the $\frac{1}{2000}$th of an inch in their longest diameter, and of peculiar form, being oval, flattened, the body slightly curved laterally, with one extremity blunt and the other almost pointed.

8. The entire mass increases in size as these small bodies increase in number, probably by division and subdivision, within the cyst.

I trust that my object in thus calling attention to these facts will not be misunderstood. It is almost impossible in recounting facts to avoid speculating a little upon their import, but I trust that I have avoided committing myself to any theory upon the nature of the Cattle Plague. No one feels more strongly than I do the importance of thoroughly investigating every fact that can be discovered in connexion with this terribly fatal malady. Does it not seem more likely that we might find out how to prevent the attack than that we should discover a remedy to cure the disease when established, and is it probable that we shall discover the means of preventing its occurrence until we have a thorough knowledge of its nature? While, therefore, it appears very desirable that the facts should be generally known, it would be premature to adopt any theory, and it is advisable that steady investigation should be prosecuted with as little theorising as possible.

Now, quite apart from the question of Cattle Plague, ought we not to have learned long before this the exact nature of these very definite bodies, so common in the muscles of many animals? Here is an entozoon-like body, inhabiting muscles, which appears to have been well known for more than twenty years, and yet little seems yet to have been discovered concerning its natural history. Entozoa are not common in the voluntary muscles, and the number of species hitherto discovered is very small; while, on the other hand, are not the facts recently made out in connexion with certain muscle-inhabiting entozoa sufficiently significant to render it desirable that any others that may be discovered should be investigated carefully and immediately?

We cannot regard these things as unworthy of attention in face of the fact that, like trichinæ, they inhabit the striped muscles only, and, like them, are found in the muscles of animals of many different classes and orders, extending over a wide geographical area. Are the species of muscle-inhabiting entozoa, or entozooid bodies, so common and so numerous that we may look upon the presence of those in question as a matter of no importance, to be dismissed without further notice? while, on the other hand, are we so well acquainted with the natural history and migration of the now common, but terrible, trichina that we can afford to omit to study any fact which seems to offer even a very slight probability of leading to the discovery of more concerning it? There are surely few subjects in which minute, earnest, scientific research has yielded such important results as have been discovered in recent investigations upon entozoa. It has been shown clearly and unmistakably enough that the lives of many persons might have been saved, and the serious and dangerous illness of *hundreds entirely prevented*, if certain meat sold for food had been subjected to careful microscopical investigation by any intelligent observer. One minute's observation would have at once condemned every particle of the meat to the flames, and have prevented a most serious loss of life.

As regards the Cattle Plague, let it be borne in mind that living particles of extremely minute size are quite competent to give rise to all the symptoms observed. Such minute living particles might be germs of entozoa or some other form of germinal or living matter. It may be remarked that the intestinal derangement which is so remarkable in Cattle Plague is such as might be caused by the passage of minute germinal particles to or from the blood of the animal, and if such germs were obstructed in the capillaries, the circumscribed patches of vascular congestion which are invariably met with in the disease would be explained. On the other hand, it might be asked if there are any facts yet known in connexion with Cattle Plague and some other fatal diseases which resist all modes of treatment yet adopted, which render such a theory untenable?

It would, I think, be at least as easy in the present state of our knowledge to bring an array of facts and arguments in favour of the doctrine of Cattle Plague being due to entozoa, as it has been to adduce facts and arguments in favour of the small-pox doctrine, while although many facts may be urged against both views, I doubt if there are any yet known which render either of these, or the typhus, or typhoid, or scarlatina notions altogether inadmissible. Nor would it be difficult to propound new theories altogether; but as time wears on it seems to become more and more certain that no such short roads to knowledge will be hit upon even by the most sagacious, the most fortunate, or the most ingenious. Thorough, prolonged, and thoughtful scientific investigation seems now the only course open to us, and that ought to be prosecuted by many, and in earnest.

REMARKS

ON

SPURIOUS ENTOZOA FOUND IN DISEASED AND HEALTHY CATTLE.

By T. SPENCER COBBOLD, M.D., F.R.S.,
LECTURER AT THE MIDDLESEX HOSPITAL.

From the 'Lancet' of the 27th January, 1866.

At a time when the public mind is thoroughly aroused to a sense of the dangers consequent upon eating pork infested with trichinæ, it is of the utmost importance that those who undertake to instruct the people should state no more than their ascertained facts will allow. To the uninformed, one parasite seems as baneful as another; or, to say the least, people are constantly liable to mistake the harmless for the hurtful species. In proof of this, I may mention that only a few days ago I received a portion of fine healthy beef from a highly respectable butcher, who requested me to examine it.* A customer had just previously returned the meat, saying that it was diseased and unfit for human food. On examining the beef microscopically, I found a very large number of psorospermiæ embedded in the muscular fibres; but in all other respects the meat was perfectly free from impurities, real or imaginary. In this case, therefore, it is possible that the customer caused the meat to be examined microscopically, and, having seen Dr. Fenwick's letter in *The Times*, naturally concluded that the meat was loaded with dangerous entozoa. As might be expected, the tradesman was not a little astonished at receiving back his meat, which he had every right to believe was as good as any other obtainable in the market.

To the supposed connexion between these so-called entozoa and the Cattle Plague I shall presently make special reference; but, meanwhile, let us glance at the labours of others in reference to these parasites. The bodies in question are by no means new to science. Similar or analogous organisms are to be met with in a great variety of animals, and likewise in the human body. They have been described under a variety of titles, such as worm-nodules, worm-nests, egg-sacs, eggs of the common fluke, young measles, corpuscles produced by muscular degeneration, psorospermiæ, stages of growth of gregarinæ, amœboid bodies, and so forth. In so far as the higher animals are concerned, Dujardin was the first to describe these structures in the mole.[1] This animal, however, having been fed upon earthworms (whose perivisceral cavities were previously known to be constantly liable to harbour such parasites), there was no difficulty in accounting for the source of the psorosperms. In 1853, Hessling discovered psorospermial sacs in the muscular substance of the heart, not only of the ox, but also of the sheep and roe.[2] By him they were regarded as evidences of muscular degeneration. About ten years previously, Miescher is said to have found similar bodies in the muscles of the mouse.[3] In 1857, Rainey described precisely similar structures taken from the flesh of swine; and, in his able memoir, he went so far as to maintain that these bodies were neither more nor less than the early stages of development of the common pork-measle.[4] This view is still, I believe, maintained by Mr. Rainey; but, in support of his theory, I am not aware that he can reckon upon the aid of any helminthological writer of distinction. Let me add, however, that for accuracy of description and detail, no communication either past or present is likely to surpass the one contributed by this able microscopist. In the year 1858, Gubler wrote a most important paper bearing on this subject, in which he related a case where twenty cysts existed in the human liver.[5] These sacs were of great size, mostly as large as a hen's egg, one of them being some six inches in diameter. Naturally enough, the largest was, during life, diagnosed to be that of an ordinary hydatid. Their nature, however, proved to be very different; for, on evacuating their contents, post-mortem, they were found to harbour enormous quantities of minute corpuscles strictly analogous to those obtained from the ordinary psorospermial sacs. Gubler believed he had stumbled upon masses of eggs of *Distoma hepaticum;* but, to show how fallacious this notion was, it may be mentioned that, whilst the eggs of the common fluke measure as much as $\frac{1}{180}$ of an inch in diameter, the corpuscles in question were only some $\frac{1}{1500}$ of an inch long. Shortly after Gubler, similar bodies from the human liver were described by Virchow;[6] and, in 1862, the subject was followed up by Dr. Dressler, of Prague.[7] Dressler, also in the human liver, found a number of pea-shaped bodies, the milky contents (*breisubstanz*) of which displayed a multitude of the characteristic corpuscular elements just referred to. These particles, already considered as equivalent to, if not identical with, the so-called pseudo-navicellæ of gregarinæ, were now encountered by a variety of independent observers. From time to time Leuckart noticed these bodies in various animals; but, with a caution natural to him, he remarks:—"Concerning the nature of these formations I will not decide. To be candid, however, it appears to me to be in no way made out, whether the psorospermiæ are to be considered as the result of a special animal development, whether they, like pseudo-navicellæ, are the nuclei of gregariniform productions, or whether they are the final products of pathological metamorphosis."[8] Leuckart found these organisms in the intestines of a trichinised dog, also in a sheep and pig severally fed with trichinæ, in the muscles of another pig fed with psorosperms, and likewise, I believe, in the liver of various rabbits. He remarks that in swine these parasites, as compared with measles, are much more abundant. They were present in five of eighteen pigs, and also in two out of four sheep, whôse flesh was specially examined by him in this relation. Valuable, however, as are the foregoing records, perhaps, in a pathological point of view, none equal in interest the observations of Lindemann at Nischney-Novgorod.[9] This medical officer discovered psorospermial sacs attached to the hair of a girl who was being treated in hospital for chlorosis. I may remark, in passing, that the sacs in question bear a remarkable resemblance to the bodies which we now find in such abundance not only in diseased but also in healthy cattle; and it would appear, from Lindemann's observations, that the affection is not very uncommon amongst the people of the locality just named. Curiously enough, in connexion with and attached to the same parasitically affected hairs, Lindemann noticed several moveable gregarinæ; and from this circumstance, in association with other considerations, he was led to believe in the existence of a genetic relation subsisting between the two kinds of bodies. He further expresses his conviction that the people contract the disease, if such it may be called, by washing themselves with water in which gregarinæ abound. Lindemann, moreover, refers to Lebert as having noticed similar parasites in a case of favus, and concludes that these organisms are of a vegetable nature. His opinion, though not shared by the majority of parasitologists, is nevertheless supported by the views of Robin,[10] Leydig,[11] and one or two others. Of still higher interest, also, are the observations of Lindemann respecting the occurrence of psorospermiæ in the capsule of the kidney of an hospital patient who died with Bright's disease. The sacs in this case were remarkably small; nevertheless, their corpuscular contents unequivocally indicated their true nature. The pseudo-navicellæ measured only the $\frac{1}{5000}$ of an inch in diameter. Here, however, I pause; yet, besides the above, many other able memoirs have appeared on the gregarinida, with which these bodies appear to be so intimately associated. Amongst the contributions, I would specially refer to those of Dufour,[12] J. Müller,[13] Creplin,[14] Kölliker,[15] Keferstein,[16] Stein,[17] Drummond,[18] Lieberkuhn,[19] and E. Ray Lankester.[20] To these I may add reference to my own previous observations.[21] I doubt if the interesting vegetable organisms described by Professor W. T. Gairdner[22] can be referred to the group of parasites under consideration. At all events, from the foregoing remarks, I think it will be seen that these spurious entozoa, by whatever name called, were first discovered by Dufour in insects, by Müller in fishes, by Miescher in the mouse, by Dujardin in the mole, by Hessling in the larger quadrupeds, and by Gubler in man.

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* One of the Messrs. Pickworth, of Goodge-street, W.

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[1] Hist. Nat. des Helm., 1845, p. 643.

[2] Sieb. and Köll. Zeitsch., 1853, bd. v., p. 196.

[3] Quoted by Leuckart and Siebold.

[4] Phil. Trans., 1857, vol. 147.

[5] Mém. Soc. Biol., 1856, p. 657, and Gaz. Méd., 1858, tom. v., p. 61.

[6] Arch. für Path. Anat., bd. xviii., p. 523.

[7] Quoted by Leuckart.

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[8] Die Mensch. Paras., 1863, bd. i., p. 141.

[9] Quoted by Leuckart.

[10] Les Végét. Paras., 2nd ed., p. 291.

[11] Müller's Arch., 1851, p. 221, and Micros. Journ., 1853, p. 206, and Arch. für Anat. u. Phys., 1863, p. 191.

[12] Ann. des Sci. Nat. 1837.

[13] Arch., 1841, p. 477.

[14] Müll. Arch., 1842, p. 61.

[15] Zeitsch., 1848–49.

[16] Gött. Anzeig., 1862, p. 1608.

[17] Müll. Arch., 1848, and Ann. Nat. Hist., 1850.

[18] Edin. Physiol. Soc. Rep., June 19th, 1852.

Let me now refer to our own recent experiences as regards the prevalence or otherwise of these bodies in diseased and healthy cattle; noting, at the same time, the circumstances leading to this inquiry. On the 7th of December last, Dr. Fenwick invited me to examine his interesting series of microscopic preparations. I informed him that the bodies he had detected in such great numbers in the muscles of animals dying from Rinderpest were the same as, or were similar to, those previously described by Hessling and Rainey. I expressed a wish that Dr. Fenwick would lay the facts thus made known to myself before the Pathological Society. Dr. Fenwick preferred to communicate his observations to a daily newspaper. He alluded to the source whence his information was obtained; but a "friend," who caused the letter to appear in *The Times*, was pleased to strike out my name. Observing that the tenor of Dr. Fenwick's letter was likely to induce the public to confound the harmless parasites in question with trichinæ and other true entozoa, I endeavoured to check any injurious influence which might arise from this cause; and happily, by the courtesy of the editors of *The Daily Telegraph* and *The Standard*, I believe I partially succeeded. In doing this, it is probable that I insisted rather too strongly on the entophytic character of these bodies; nevertheless, let any unprejudiced observer compare the corpuscular contents of these sacs with the non-ciliated zoospores of the grape fungus, and he will not fail to observe a most marked similarity between the two. The placing of these bodies along with the entozoa, properly so called, is altogether out of the question, their characters in no respect conforming with those of helminths, even in the earliest phases of development of the latter. It is best to regard them as parasitic protozoa, having more or less striking vegetable affinities.

So much has already been made known respecting the structure of the psorospermiæ that I desire to avoid unnecessary details; yet, as regards those which I have recently examined, I must add one or two particulars. In the flesh of cattle I find the sacs varying from $\frac{1}{120}$ to $\frac{1}{12}$ of an inch in length, and in that of sheep from $\frac{1}{225}$ to $\frac{1}{80}$ of an inch. The bodies are enclosed in a well-

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[19] Müll. Arch., 1854, p. 349, and Reich. and Du Bois-Reym. Journ., Sept. 1865, and Micros. Journ., Jan. 1866.

[20] Ibid., 1866, p. 23.

[21] Proc. Linn. Soc., May, 1862, p. 245, and Intell. Observ., 1862, p. 199.

[22] Edin. Phys. Soc. Rep. for March 19th, 1853.

defined transparent envelope, and, even under low magnifying powers, their contents exhibit more or less distinct indications of segmentation. In some specimens the segments display themselves as a complete cell-formation, the contents of each individual cell being uniformly granular. Even under the quarter-inch objective, the contained granules are clearly visible, and on rupturing the sac, their peculiar characteristics are at once manifest. Each granule or corpuscle represents a pseudo-navicel, all of them displaying a tolerably uniform size, which I calculated to average about the $\frac{1}{2000}$ of an inch in diameter. Some of the corpuscles were round, others oval, several bluntly pointed at one end, many curved and fusiform, not a few being almost reniform. Under the quarter objective highly refracting points or nucleoli were fairly visible in their interior, but on employing the one-twelfth, I made out nothing more respecting the contents of the corpuscles. This was, perhaps, in some measure due to the glass covers employed being a trifle too thick.

Turning to the more obviously practical aspect of the subject, let me at once remark that these bodies have nothing whatever to do with the Cattle Plague. No one, it is true, who has had an opportunity of examining the flesh of any number of animals dying of Rinderpest has, so far as I am aware, failed to discover them; yet, in one or two isolated instances, they appear to have escaped notice, and may possibly not have been present. When it is considered how long it takes us to examine a few grains weight of muscle carefully, it is obvious that the body of a large beast might contain many hundreds, or even thousands, of these spurious entozoa without our being able to detect their presence, except by a very prolonged and unnecessary investigation. In the few Rinderpest beasts, portions of whose flesh I have submitted to the microscope, I should say that there were not more than 100 of these bodies in an ounce of meat; but in the heart of a healthy sheep (which I afterwards ate) I calculated there were about 1000 parasites to the ounce, and in the heart of a healthy bullock (which likewise served me for a meal) their numbers were probably rather in excess of those in the sheep. Altogether, at two meals, I could not have swallowed less than 18,000 of these psorospermiæ; yet had they been trichinæ, I should have hesitated to have dined off this food, however thoroughly well-cooked the meat might have been. The fact is, I believe, that lovers of beef, mutton, and pork eat these bodies every day, but take no harm because the parasites in question are not entozoa in any proper sense of the term. The fine healthy beef to which I alluded at the outset, and which was returned by an alarmed customer, was, in my opinion, as good as any other meat in the market; and yet, of all the portions of flesh I have examined, including veal, pork, and mutton, in none did I find so great an abundance of these falsely so-called entozoa. I should say, without exaggeration, that a single ounce of the flesh contained upwards of 2000 parasites.

ORDERS IN COUNCIL.

XI.

At the Council Chamber, Whitehall, the 20th day of January, 1866, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—Lord President, Lord Privy Seal, Earl Russell, Lord Stanley of Alderley, Sir George Grey, Bart., Mr. Milner Gibson, Mr. Bruce, Mr. Göschen.

Whereas by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, chapter 107, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then Session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," which Act has since been from time to time continued by divers subsequent Acts, and lastly by an Act passed in the Session of the 28th and 29th years of the reign of Her present Majesty, chapter 119, it is (among other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, or of hay, straw, fodder, or other articles likely to propagate infection, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the same shall for each and every offence forfeit and pay any sum not exceeding 20*l*., or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder now prevails among cattle within that part of the United Kingdom called Great Britain, which disorder is generally designated as the "Cattle Plague:"

And whereas, with a view to check the spreading of the said disorder, an order, dated the 23rd of November, 1865, has been made under the authority of the said Acts by the Lords of Her Majesty's Privy Council, consolidating and amending certain orders previously made for that purpose; and the same has since been altered and amended by a subsequent order, bearing date the 16th day of December, 1865:

And whereas it is expedient to alter and amend the said orders of the 23rd day of November, 1865, and the 16th day of December, 1865, respectively:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, in exercise of the powers given by the said Act so continued as aforesaid, order as follows:—

1. The power given by the said orders to any local authority, as defined by the said order of the 16th day of December, 1865, to declare by notice published in any newspaper circulating within its jurisdiction, and also by notice published in some newspaper or newspapers circulating within the county or counties bordering upon the county within which the jurisdiction of such local authority is situate, that it is expedient, for a time to be specified in such notice, that animals, as defined by the said order of the 23rd day of November, 1865, or some specified description thereof, shall not, either absolutely, or except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be brought from any other part of Great Britain into any place within his or their jurisdiction shall extend, from and after the day on which this present order comes into operation, to all raw or untanned hides and skins, and all horns or hoofs of any animals as defined as aforesaid, or of any description thereof to be specified in any such notice, except such hides, skins, horns, or hoofs as are directly imported into the United Kingdom from India, Australia, South Africa, or America, and to the offal of any such animals as aforesaid, and also to all dung, hay, straw, fodder, or litter likely to propagate infection; and it shall not be lawful for any person, in contravention of any such notice, to bring or send any hide, skin, horn, hoof, offal, or other article as aforesaid, except in accordance with such conditions as aforesaid, from any place in Great Britain beyond such jurisdiction into any place within such jurisdiction; and the copy of any such notice shall be sent forthwith by the local authority by which it is made to the Clerk of Her Majesty's Privy Council, and shall be published by him in *The London Gazette:* provided always, that nothing contained in this clause of this order shall make it unlawful for any person to send or carry any such hides, skins, horns, hoofs, offal, or other articles as aforesaid, by railway, through such jurisdiction; and provided also, that nothing contained in this clause of this order shall make it unlawful for any person to bring or send, with the licence of any two Justices acting in and for the jurisdiction to which such notice applies, any such hides, skins, horns, hoofs, offal, or other articles as aforesaid, from any land and premises in his own occupation, and beyond such jurisdiction to any other land or premises in his own occupation within such jurisdiction, during a time to be specified in such licence.

2. The power given by the said order of the 16th day of December, 1865, to any local authority as thereby defined, to declare, by notice published in any newspaper circulating within its jurisdiction, that it is expedient, for a time to be specified in such notice, that no cow, heifer, bull, bullock, ox, or calf shall, except under such conditions as such local authority shall think fit to impose with a view to prevent the spreading of the said disorder, be removed from any particular part of the jurisdiction of such local authority to any other part of such jurisdiction; or from any place or places within such jurisdiction, to be specified in such notice, to any other such place or places, also to be so specified; or from place to place generally within such jurisdiction, or within any specified part thereof; shall extend, from and after the day on which this present order comes into operation, to all animals, as defined by the said order of the 23rd day of November, 1865, or any specified description thereof; and also to all raw or untanned hides and skins, and all horns and hoofs of any animals as defined as aforesaid, or of any description thereof to be specified in any such notice, except such hides, skins, horns, or hoofs as are directly imported into the United Kingdom from India, Australia, South Africa, or America, and to the offal of any such animals as aforesaid, and also to all dung, hay, straw, fodder, or litter likely to propagate infection; and it shall not be lawful for any person to remove any animal, or any hide, skin, horn, hoof, offal, or other article as aforesaid, in contravention of any such notice: provided always, that nothing contained in this clause of this order shall make it unlawful for any person to send or carry any such animals, or any such hides, skins, horns, hoofs, offal, or other articles as aforesaid, by railway, through such jurisdiction, or to send or carry any such animals, or any such hides, skins, horns, hoofs, offal, or other articles as aforesaid, if brought by sea from any place out of Great Britain into such jurisdiction, to the nearest convenient railway station, for the purpose of carrying them through or out of such jurisdiction.

3. The aforesaid order, bearing date the 16th day of December, is hereby amended by omitting the words "or out of" from the proviso at the end of the fourth clause of the said order; and the said proviso is to be read as follows:—"provided always, that nothing contained in this clause of this order shall make it unlawful to send or carry any such animal by railway through such jurisdiction, or to send or carry any such animal, if brought by sea from any place out of Great Britain into such jurisdiction, to the nearest convenient railway station, for the purpose of carrying it through or out of such jurisdiction."

4. Any notice given by virtue of this present order may be renewed, revoked, altered, or varied from time to time, in the manner provided by the said recited orders, with respect to notices given under and by virtue thereof.

5. This order shall come into operation on the 25th day of January, 1866, and shall be in force thenceforth until the 1st day of March next, and no longer, unless continued by some further order.

6. Every person offending against this order shall, in pursuance of the said Act, for every such offence forfeit any sum not exceeding 20*l.*, which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) ARTHUR HELPS.

XII.

AT the Council Chamber, Whitehall, the 20th day of January, 1866, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—LORD PRESIDENT, LORD PRIVY SEAL, EARL RUSSELL, LORD STANLEY OF ALDERLEY, SIR GEORGE GREY, Bart., MR. MILNER GIBSON, MR. BRUCE, MR. GÖSCHEN.

Whereas by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then session of Parliament, the spreading of contagious or infectious disorders among sheep, cattle, and other animals," which Act has since been from time to time continued by divers subsequent Acts, and lastly, by an Act passed in the Session of the 28th and 29th years of Her present Majesty, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time, to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, and to make other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations, and that all provisions for any of the purposes aforesaid, in any such order or orders contained, shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the same should for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder prevails among cattle within those parts of the United Kingdom called England and Scotland, which disorder is generally designated as the "Cattle Plague," or "Rinderpest," and may be recognised by the following symptoms:—"Great depression of the vital powers, frequent shivering, staggering gait, cold extremities, quick and short breathing, drooping head, reddened eyes, with a discharge from them and also from the nostrils of a mucous nature, raw-looking places on the inner side of the lips and roof of the mouth, diarrhœa or dysentric purging:"

And whereas it is possible that the said disorder may extend to that part of the United Kingdom called Ireland; and it is expedient to make provisions with a view to check the spreading of the said disorder, in case it should so extend:

Now, therefore, the Lords of Her Majesty's Privy Council do hereby, by virtue of, and in exercise of the powers given by the said Act so continued as aforesaid, order as follows:—

1. This order shall extend to all parts of that part of the United Kingdom called Ireland.

2. In this order the word "animal" shall mean any cow, heifer, bull, bullock, ox, calf, sheep, lamb, goat, or swine, and any horse kept in the same field, house, stable or building with any cattle.

3. In all provisions of this order to be enforced within the Police District of Dublin metropolis, the words "County Inspector of Constabulary" shall signify one of the Commissioners of the Dublin Metropolitan Police; and "Constable" shall signify a Superintendent or Inspector or Acting-Inspector of the Dublin Metropolitan Police; and the words "Petty Sessions Court" shall signify any of the offices of the Divisional Justices of the said district.

4. Every person having in his possession or under his custody any animal labouring under or having symptoms of the said disorder shall forthwith give notice thereof to the nearest constabulary station of the district within which such animal is, or, if within the Dublin Metropolitan Police District, to one of the superintendents of the Metropolitan Police.

5. Every constable shall have power within his district to enter upon and inspect any premises or place in which he has reason to believe that any animal is labouring under the said disorder, and to examine and inspect, whenever and wherever he may deem it necessary, any animal within such district which he has reason to suspect to be labouring under the disorder; and such constable shall report the fact of every such visit, with its results, to the Petty Sessions Court of the district in which such visit has been made at the next sitting of such Court.

6. Whenever any constable shall receive or obtain information that any animal is labouring under the said disorder, he shall, by the next post, or if possible by telegram, communicate such information to the Chief Secretary or Under Secretary to the Lord-Lieutenant, who shall immediately order a competent person as inspector to proceed without delay to the place where the animal alleged to be so labouring is, and to inspect the same; and such inspector shall on the same day forward to the said Chief Secretary or Under Secretary a report stating whether in his opinion the animal is or is not affected with the disorder.

7. Such constable shall communicate also to the nearest magistrate the report which he has transmitted to the Chief Secretary or Under Secretary; and if such magistrate shall satisfy himself that there are reasons for grave

suspicion that the animal mentioned in the constable's report is labouring under the said disorder, he shall have power to issue an order (to be in operation for three days, or until such time as the inspector shall finally report that such animal is free from the said disorder, and subject to such conditions as he may think proper), prohibiting the removal of such animal from the land or premises where the said animal shall be, and requiring all other animals to be kept separate and apart from it.

8. On receipt of information to the effect that an animal is labouring under the said disorder, not being within a district already marked out as an infected district as hereinafter provided, the Lord-Lieutenant shall send without delay to the place where such animal is two or more competent persons, who shall mark out a certain line around such place, and lay down the same upon the Ordnance map. The limit of the district enclosed shall be shown by well-defined boundaries, and all the district within such boundaries shall be called "An Infected District," and such competent persons shall forthwith forward to the county inspector of constabulary a description of such district, and marked as aforesaid on the Ordnance map.

9. On receipt of such information the County Inspector of Constabulary shall, without delay, cause to be posted in all public places within ten miles of the infected district a notice describing the boundaries of the same; and, from the date of the posting of the first of such notices, it shall not be lawful for any person to hold any fair within such "infected district," or to move out of such "infected district" any animal whatsoever; but any animal, if certified by an inspector to be free from disease, may be slaughtered, and the carcase of such animal may be sent out of such infected district, provided that its skin and offal shall be left within the district; and no skin of any animal slaughtered or dying within such district shall be removed without being disinfected, and without the permission of the inspector, provided that this prohibition shall not extend to the carrying any animal through any such district by a railway train.

10. From the date of the posting of such notice, the County Inspector of Constabulary shall station at all necessary places constables and sub-constables, who shall prevent the egress of all animals from the "infected district," and shall prohibit the transit or passage of all animals by or through any part of the said district, except in railway trains, and shall as far as possible prevent any animal from approaching the boundaries of such district, and shall prevent the carrying out of any forage, litter, or manure therefrom.

11. The constables or sub-constables shall cause all fœcal matter discharged by any animal labouring under the said disorder to be collected, so far as it can be done, and all litter and other refuse, in any house or place in which any such animal may have been located, and all fodder placed before or brought into contact with such animal, to be collected and buried at least four feet under the surface, or to be destroyed by fire, and the ashes thereof buried.

12. From the date of the posting of the first of such notices, all dogs within

the infected district at that date shall be kept shut up or chained, or by other sufficient means shall be prevented from passing out of such district.

13. Such "infected district" shall remain and be considered as an infected district, and subject to the regulations herein applicable to an infected district so long as any case of disorder exists within it, and for a period of twenty-one days after the last case of death or recovery, to be certified by the inspector, and until such inspector shall have certified that all proper precautions have been taken for the purposes of disinfection.

14. Every inspector shall have power to require and cause any animal declared and certified by him in writing to be labouring under the said disorder to be slaughtered without delay and buried six feet deep in the ground and covered with lime, in such a spot as he may select, and in the case of burial being necessary at a distance from the place of death, he shall cause all practicable means to be taken for preventing the carcase from becoming the vehicle of infection before the removal thereof. The carcases of all diseased animals shall be buried unskinned, and the skins thereof shall be scored so as to prevent their being used.

15. No person who may be brought into contact with any diseased animal shall take with him out of such "infected district" any clothes or garment which such person may have worn while in contact with any such animal, either by wearing the same or otherwise, without taking all such precautions against propagating infection by means thereof, as the Lord-Lieutenant by any order may direct.

16. No dog accompanying a drover or of the description ordinarily used by drovers or persons in charge of cattle, sheep, or swine, shall be brought into any part of Ireland by any person, if the last place on land from whence such dog shall have been brought shall be any part of Great Britain.

17. This order shall come into operation on the 25th day of January, 1866, and shall continue in force thenceforth until the same shall be revoked by any future order.

18. Every person offending against this order shall, in pursuance of the said Act, for every such offence, forfeit any sum not exceeding 20*l.*, which the Justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) ARTHUR HELPS.

XIII.

AT the Council Chamber, Whitehall, the 6th day of February, 1866, by the Lords of Her Majesty's Most Honourable Privy Council.

Present—LORD PRESIDENT, DUKE OF SOMERSET, LORD STANLEY OF ALDERLEY, SIR GEORGE GREY, Bart., MR. BRUCE, MR. GÖSCHEN.

Whereas by an Act passed in the Session of the 11th and 12th years of Her present Majesty's reign, chapter 107, intituled "An Act to prevent until the 1st day of September, 1850, and to the end of the then next Session of Parliament, the spreading of contagious or infectious disorders amongst sheep, cattle, and other animals," which Act has since been from time to time continued by divers subsequent Acts, and lastly by an Act passed in the Session of the 28th and 29th years of the reign of Her present Majesty, chapter 119, it is (amongst other things) enacted that it shall be lawful for the Lords and others of Her Majesty's Privy Council, or any two or more of them, from time to time to make such orders and regulations as to them may seem necessary for the purpose of prohibiting or regulating the removal to or from such parts or places as they may designate in such order or orders, of sheep, cattle, horses, swine, or other animals, or of meat, skins, hides, horns, hoofs, or other parts of any animals, or of hay, straw, fodder, or other articles likely to propagate infection, and to make any other orders or regulations for the purpose of giving effect to the provisions of the said Act, and again to revoke, alter, or vary any such orders or regulations; and that all provisions for any of the purposes aforesaid in any such order or orders contained shall have the like force and effect as if the same had been inserted in the said Act; and that all persons offending against the same shall for each and every offence forfeit and pay any sum not exceeding 20*l.*, or such smaller sum as the said Lords or others of Her Majesty's Privy Council may in any case by such order direct:

And whereas a contagious or infectious disorder now prevails among cattle within that part of the United Kingdom called Great Britain, which disorder is generally designated as the "Cattle Plague:"

And whereas, with a view to check the spreading of the said disorder, an order dated the 23rd day of November, 1865, has been made, under the authority of the said Acts, by the Lords of Her Majesty's Privy Council, consolidating and amending certain orders previously made for that purpose; and the same has since been altered and amended by subsequent orders bearing date the 16th day of December, 1865, and the 20th day of January, 1866:

And whereas it is expedient to alter and amend the said Orders in so far as they relate to the metropolis: Now, therefore, the Lords of Her Majesty's Privy Council do hereby, in exercise of the powers given by the said Act so continued as aforesaid, order as follows:—

1. The word "Metropolis," for the purposes of this Order, shall mean any parish or place within the jurisdiction of the Metropolitan Board of Works, exclusive of the City of London and the liberties thereof, and also exclusive of that part of the county of Kent which is included in such jurisdiction, and which is situated to the north of the Thames.

2. So much of the said Orders of the 23rd day of November and the 16th day of December, 1865, as empowers the Clerk of Her Majesty's Privy Council to appoint inspectors within the limits of the Metropolitan Police district, is hereby revoked.

3. So much of the said Orders of the 23rd day of November and the 16th day of December, 1865, and of the Order of the 20th day of January, 1866, as gives to any local authority any jurisdiction or power whatsoever within the Metropolis is hereby revoked: and all Orders made or notices published by any such local authority shall absolutely cease and determine so far as respects the Metropolis from the date of this Order coming into force, but without prejudice to their validity as respects any place beyond the Metropolis.

4. The Clerk of Her Majesty's Privy Council may appoint inspectors for the Metropolis, and the notice required by section 8 of the Order of the 23rd of November, 1865, to be given to the said Clerk of the Council by persons in certain cases within the Metropolitan Police District, shall after the date of this Order be required to be given only by persons within the Metropolis.

5. No person having in his possession, or under his charge, any cow, heifer, bull, bullock, ox, or calf within the Metropolis, whether such animal has been in the Metropolitan Cattle Market or not, shall convey or remove, cause to be conveyed or removed, or attempt to convey or remove, any such animal out of the Metropolis, except into the City of London, or the liberties thereof: Provided that where any person occupies a farm or other contiguous premises situated partly within and partly without the Metropolis, he may, with a licence from the Commissioner of Police of the Metropolis, which such Commissioner is hereby empowered from time to time to grant, and, if he think fit, to revoke, and for a time not exceeding seven days from the date of such licence, move from one part of such premises to another any animal not affected by the Cattle Plague which has been in his own possession for fourteen days previous to the date of such licence, and has been marked in such manner as the said Commissioner of Police may direct.

6. No person shall bring or send, or cause to be brought or sent, any cow, heifer, bull, bullock, ox, or calf, to any market or fair, or to any place whatever in the metropolis, for the purpose of exhibition or sale, excepting to the Metropolitan Cattle Market; and no person shall bring or send, or cause to be brought or sent, any such animal to the said Metropolitan Cattle Market, except for the purpose of being there exhibited and sold for immediate slaughtering; and no such animal so brought or sent shall be allowed to leave the said market, unless sold, and marked in the manner in which cattle are

ordinarily marked for slaughter in the said market, videlicit, by clipping the hair off the end of the tail. And the officers of the said market shall cause such mark to be duly made. And no person shall buy or sell, or cause to be bought or sold, any such animal in the said market, except for immediate slaughtering; and every person buying any such animal in the said market shall slaughter the same, or cause the same to slaughtered within seven days of such purchase: Provided that nothing contained in this clause of this Order shall be held to prohibit any person from exhibiting or selling on his own land or premises any animal belonging to him which has been on such land or premises for not less than fourteen days previous to such exhibition or sale, and is not affected by the Cattle Plague.

7. No person shall remove, or cause to be removed, any cow, heifer, bull, bullock, ox, or calf, along any highway, thoroughfare, or public place within the metropolis, except for a distance not exceeding 500 yards from part to part of the same farm, or to water, without a licence from the said Commissioner of Police; and every such licence shall state the number and description of animals licensed to be removed, and the place of their destination, and shall be valid only for twenty-four hours from the date thereof: Provided that this clause of this Order shall not apply to any animals intended for immediate slaughtering, which are sent to or from the said Metropolitan Cattle Market.

8. This Order shall come into operation on the 14th day of February, 1866.

9. Every person offending against this Order shall, in pursuance of the said Act, for every such offence forfeit any sum not exceeding 20*l.*, which the justices before whom he or she shall be convicted of such offence may think fit to impose.

(Signed) ARTHUR HELPS.

LAST RETURNS.

These returns do not profess to give the total number of cases which have occurred in Great Britain, but only those which have been ascertained from the official information received at this office from inspectors, whether appointed by the Clerk of the Council or by the local authorities. The divisions of England are those of the census.

Column 1 only records the cases reported as having commenced during the weeks indicated by the headings; "back" cases being added to column 2.

Census Divisions.	1. Number Attacked.			2. Result of Reported Cases from the commencement of the Disease.				
	Week ending Feb. 3.	Week ending Jan. 27.	Week ending Jan. 20.	Attacked.	Killed.	Died.	Recovered.	Remaining.
Metropolitan Police District	36	26	21	7,510	3,170	3,429	320	591
South Eastern Counties	38	35	33	4,888	1,507	2,729	430	222
South Midland Counties	689	589	860	11,224	1,954	7,591	894	785
Eastern Counties	201	157	315	8,055	2,902	4,034	593	526
South Western Counties	48	58	82	1,217	311	635	152	119
West Midland Counties	195	1,723	444	5,100	548	3,407	527	618
North Midland Counties	725	715	442	5,785	702	3,876	467	740
North Western Counties	3,221	3,510	3,738	23,193	644	15,841	1,602	5,106
Yorkshire	1,426	2,034	1,314	21,270	948	13,155	3,407	3,760
Northern Counties	330	116	290	2,918	631	1,533	362	392
Monmouthshire and Wales	369	626	542	5,834	102	4,499	717	516
Scotland	1,875	2,156	1,960	35,189	3,949	20,657	6,584	3,999
Total	9,153	11,745	10,041	132,183	17,368	81,386	16,055	17,374

(Signed) ALEXANDER WILLIAMS, *Sec.*

Veterinary Department of the Privy Council Office,
9, Princes-street, Westminster, S.W., Feb. 8.

NOTE.—209 inspectors have not reported this week in time for this return. Among these, and belonging to the county of York, are Messrs. Hoskinson, Stone, Harrison, Pennock, and Holt; to Shropshire, Mr. Benjamin Duff; to Staffordshire, Messrs. B. Duff and Llewellyn; to Cheshire, Messrs. Storrar and Lewis, the latter of whom has, however, forwarded a partial report. These inspectors returned 2304 cases last week, and the apparent decrease of the disease is probably more due to their neglect than to any real diminution of attacks.

A. W.

Feb. 8.

STATISTICAL STATEMENT SUMMARISED IN DETAIL FOR GREAT BRITAIN UP TO FEBRUARY 3RD.

Divisions and Counties.	Number Attacked from commencement.
1. Metropolitan District......	7,510
2. South Eastern:—	
Berks	619
Hants	288
Kent	1,491
Surrey	1,311
Sussex	1,179
3. South Midland:-	
Beds	466
Bucks	579
Cambridge	4,682
Herts	386
Hunts	2,167
Northampton	1,823
Oxon	1,121
4. Eastern Counties:—	
Essex	2,155
Norfolk	4,164
Suffolk	1,736
5. South Western Counties:—	
Cornwall	864
Devon	155
Dorset	12
Somerset	67
Wilts	119

Divisions and Counties.	Number Attacked from commencement.
6. West Midland:—	
Gloucester	84
Hereford	551
Salop	2.325
Stafford	1,420
Warwick	664
Worcester	56
7. North Midland:—	
Derby	230
Leicester	221
Lincoln	4,670
Notts	639
Rutland	25
8. North Western:—	
Chester	21,135
Lancaster	2,058
9. Yorkshire:—	
East Riding .... North Riding .... West Riding	21,270
10. Northern:—	
Cumberland	1,539
Durham	417
Northumberland	962
Westmoreland	..
11. Monmouth and Wales ...	5,834
12. Scotland	35,189

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THE ALBERT VETERINARY COLLEGE has been established for the eminently national purpose of fostering in the metropolis of these dominions the most approved systems of Veterinary teaching and practice. It has in reality been in existence since 1857, when Professor John Gamgee founded in Edinburgh the New Veterinary College, in which students have been regularly initiated up to the present time in the art and science of Veterinary Medicine. The New Veterinary College owed its origin to Professor Gamgee's efforts in suppressing the traffic in diseased animals, and securing a rational disease prevention system. We now can estimate the worth of such efforts; and it is hoped by the transference of the New Veterinary College from Edinburgh to London, much more may be done to correct a state of matters alike deplorable and disgraceful in any enlightened country.

The number of Veterinary Surgeons in the United Kingdom is lamentably deficient: though this country possesses the finest animals in the world, there are fewer skilled persons to attend to their health than in most parts of Europe. Thus, over the greater portion of the Continent, one Veterinary practitioner is found to every area of country, varying from 38 to 81 square miles, whereas in England there is only one to 160 square miles.

Notwithstanding the far greater value of stock in England than in France, we find that the whole of Her Majesty's possessions have less than 1,500 Veterinarians engaged in their profession, whereas France alone without her dependencies has upwards of 3,000.

Owing to the great desideratum of a course of scientific education for Agriculturists in the metropolis, arrangements have been made on the plan which has worked so successfully in Paris and elsewhere, of combining a course of Agriculture with the curriculum of Veterinary studies.

It is believed that many interested in farming pursuits, whether in London and its environs or elsewhere, will avail themselves of the great privileges thus afforded them, preparatory to or after a course of practical training in the country, and no effort will be spared to render the agricultural curriculum complete in all particulars.

RULES AND REGULATIONS

OF

THE ALBERT VETERINARY COLLEGE

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The annual subscriptions are payable on the 25th of March and 29th of September.

LIFE AND ANNUAL SUBSCRIBERS

Have the privilege of having their sick animals treated in the Infirmary free from all charge, except for keep.

They can have any number of animals examined at the College as to soundness.

They can also, at a nominal charge, according to distance, secure the assistance of competent attendance at their residence in cases of illness, when the removal of animals to the Infirmary may be inconvenient or attended with danger.

Tenant farmers, and owners of horses in provincial towns, have the privilege of attendance in any part of the country, on payment of simple travelling expenses, and a nominal charge of one guinea per day. They can also receive advice by letter, and secure the investigation of the conditions of any animals sent to the College (alive or dead), with a view to ascertain the nature of any outbreak of disease.

NON-SUBSCRIBERS

Can secure the services of the Professors, at the College, either for the purpose of consultation or for the examination of horses as to soundness, by the payment of a fee according to a fixed scale.

They shall be entitled to have animals kept and treated in the Infirmary by paying for treatment in addition to keep.

THE PHARMACY.

Medicines are supplied by the College at reasonable prices for animals not treated in the Infirmary. The Professor of Materia Medica specially superintends this department with a view to provide Medicines of the best quality and carefully compounded.

THE FORGE,

Under the immediate superintendence of Professor Gamgee, Sen., is open for attendance on Horse's Feet, shoeing, &c. The greatest attention will be always paid in this department, not only in the treatment of lame animals, but in the preservation of those in health.

GRATUITOUS ADVICE.

Poor persons who cannot afford the expenses attendant on the treatment of their animals may obtain the advice of the Clinical Professor on duty every day, except Sundays, between the hours of Ten and Eleven A.M. Medicines will be supplied at moderate prices under such circumstances.

CHARGES.

Keep of horses 3s. per night each.
„ cattle 1s. 6d. „ „ „
„ dogs 3d. „ „ „ if small.
„ dogs 6d. „ „ „ if large.

The charge for the keep of other animals to be fixed by the Principal.

	Each.		
Examination of horses of *non subscribers,* as to soundness, or in case of sickness	£1	1	0
Forge Charges.—For shoeing saddle or carriage horses	0	5	0
„ „ „ cart horses .	0	7	6

PAYMENTS.

All fees, expenses of keep, &c., must be paid for before removal of animals from the College.

Charges for shoeing animals not in the Infirmary payable at the time of shoeing, or otherwise, by special arrangement.

EDUCATIONAL DEPARTMENT.

Gentlemen attending the Albert Veterinary College have to pay an entrance fee of twenty-five guineas, or at the rate of five guineas per class, if only a limited number of courses are to be followed. The fee of twenty-five guineas entitles to perpetual attendance on lectures and practice during winter sessions, and on practice alone during summer.

Should any Student refuse to conform to the rules of the Institution, or otherwise disgrace himself, the Committee of Management reserves its right for the interests of the College and of its Students, to withdraw the right of attendance from such Student, for a definite period of time, or unconditionally to expel him.

TUTORIAL CLASSES AND DEMONSTRATIONS.

The system of aiding Students by special instruction on Anatomy, Chemistry, and other sciences by Demonstrations, in addition to the Oral Lectures, will be carried out daily during the Winter Session.

PRACTICAL INSTRUCTION.

Clinical Lectures will be delivered as frequently as possible during the Winter Session, to bring before the Student cases which may be under treatment in the Infirmary or elsewhere. Students will be practically instructed on the administration of medicines, fixing animals for operations, examinations for soundness, &c., besides their own observation of the College Practice.

PRIZES.

In addition to the Free Studentship, there will be Medals and Certificates given for the best Written Examinations on all the subjects taught in the various classes.

A Silver Medal will be given to the Student who can most satisfactorily accomplish some practical duty, selected to test skill, such as diagnosing disease, examining for soundness, &c.

EXAMINATIONS FOR THE DIPLOMA.

All Gentlemen desirous of presenting themselves for examination must attend regularly at least two Winter Sessions. They are, however, recommended to devote longer time to their studies.

They must afford ample indications of steady progress, in order to secure their Certificates.

They must not absent themselves from the College without giving due information of the cause of their absence to the Principal.

FREE STUDENTSHIP.

As an inducement to make good progress in the essential studies of Anatomy, Chemistry, and Physiology, all Students entering the Albert Veterinary College not later than the 2nd of October, 1865, will be afforded an opportunity to compete for a Free Studentship, in April, 1866.

CONDITIONS TO BE OBSERVED BY COMPETITORS

FOR THE

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III. There will be weekly Oral and monthly Written Examinations, to test the progress made by the Students, at which the proposed Competitors are to indicate steady advance in their Studies. The competitors must be at least ten in number.

IV. At the close of the Winter Session the Competitive Examination will take place, at which six questions will be given, to be answered in writing. The questions in Anatomy will be confined to the Bones, Ligaments, and Muscles; in Chemistry, to Inorganic Substances; and in Physiology, to the Organs of Digestion, Circulation, and Respiration.

V. The Student who replies best to the Questions propounded will be entitled to a Silver Medal, and receive back the Fee paid in October.

VI. No person shall be admitted to such competition who has previously attended a Veterinary College or School of Medicine.

VII. Should the Prize be taken by any person who has obtained an undue advantage by any means whatsoever, so as to invalidate the fairness of the competition, he shall forfeit the Prize in favour of the person who proves second in the competition.

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Professor John Coleman, late of the Royal Agricultural College, Cirencester, will superintend the Agricultural Department, and will deliver his Introductory Lecture on Tuesday, the 3rd of October, 1865.

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